THE Journal

SEPTEMBER

1951

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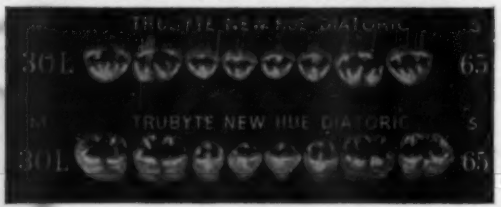

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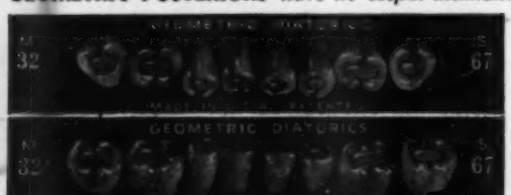

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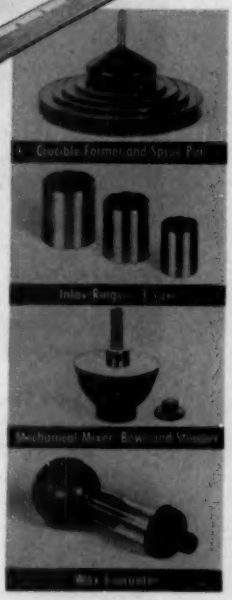

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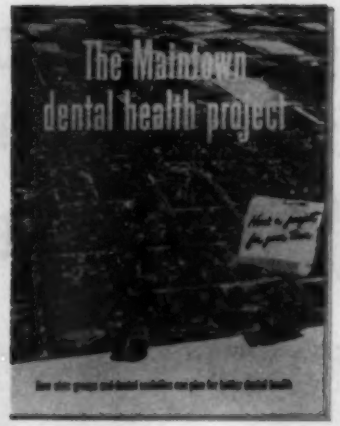

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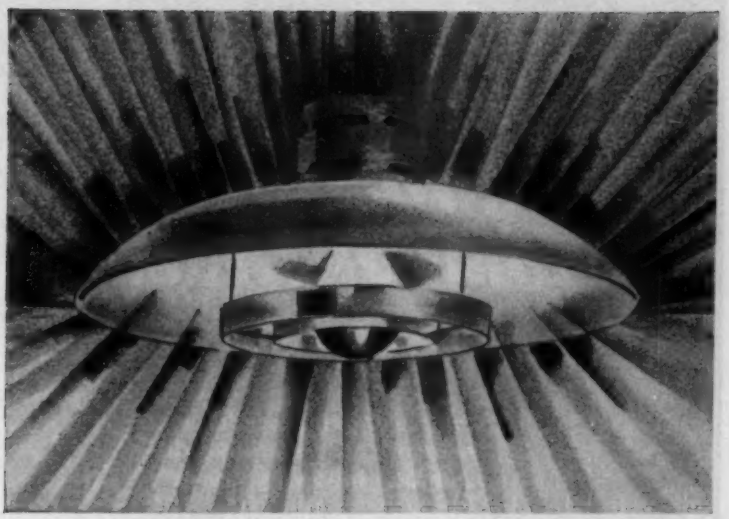

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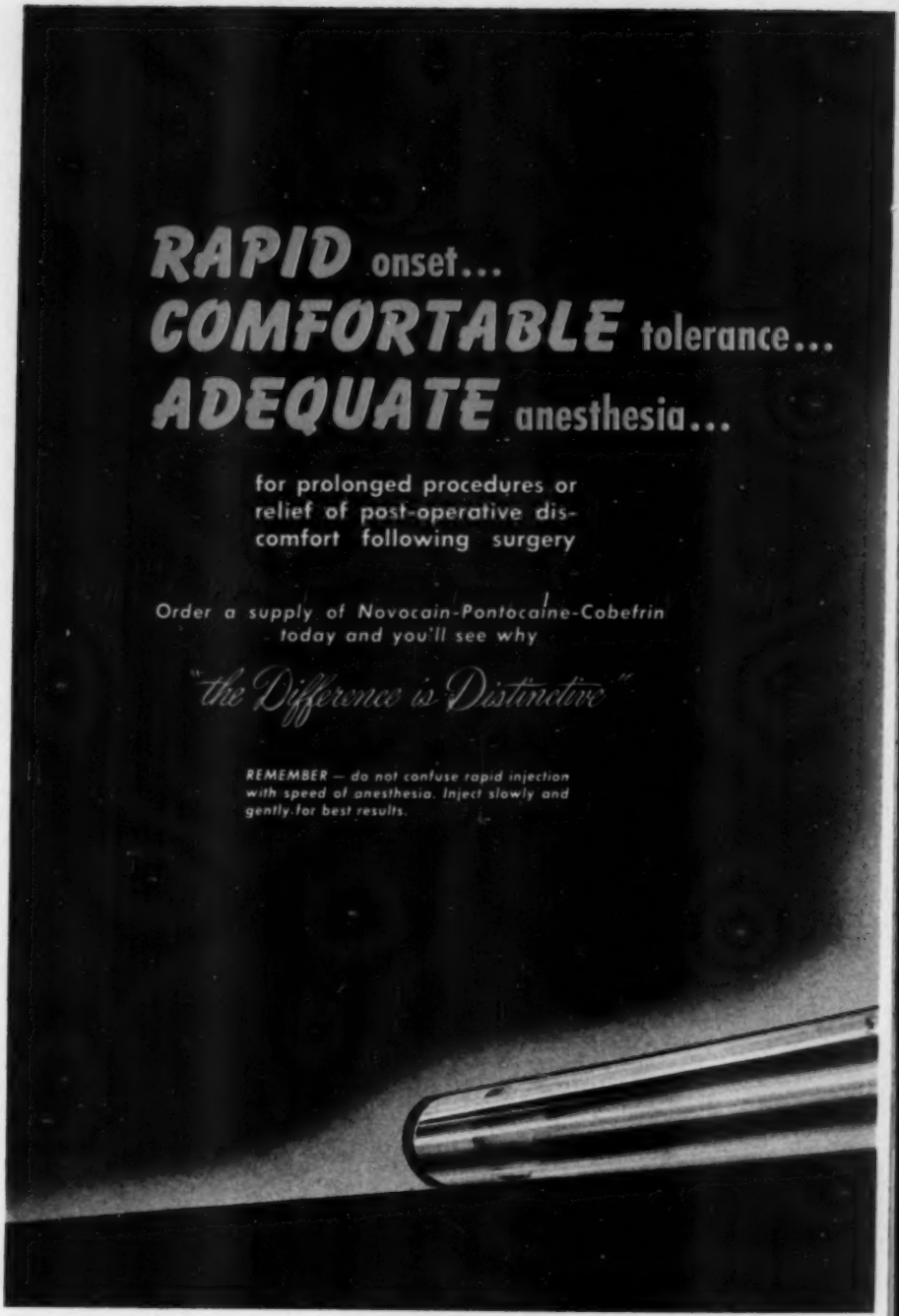
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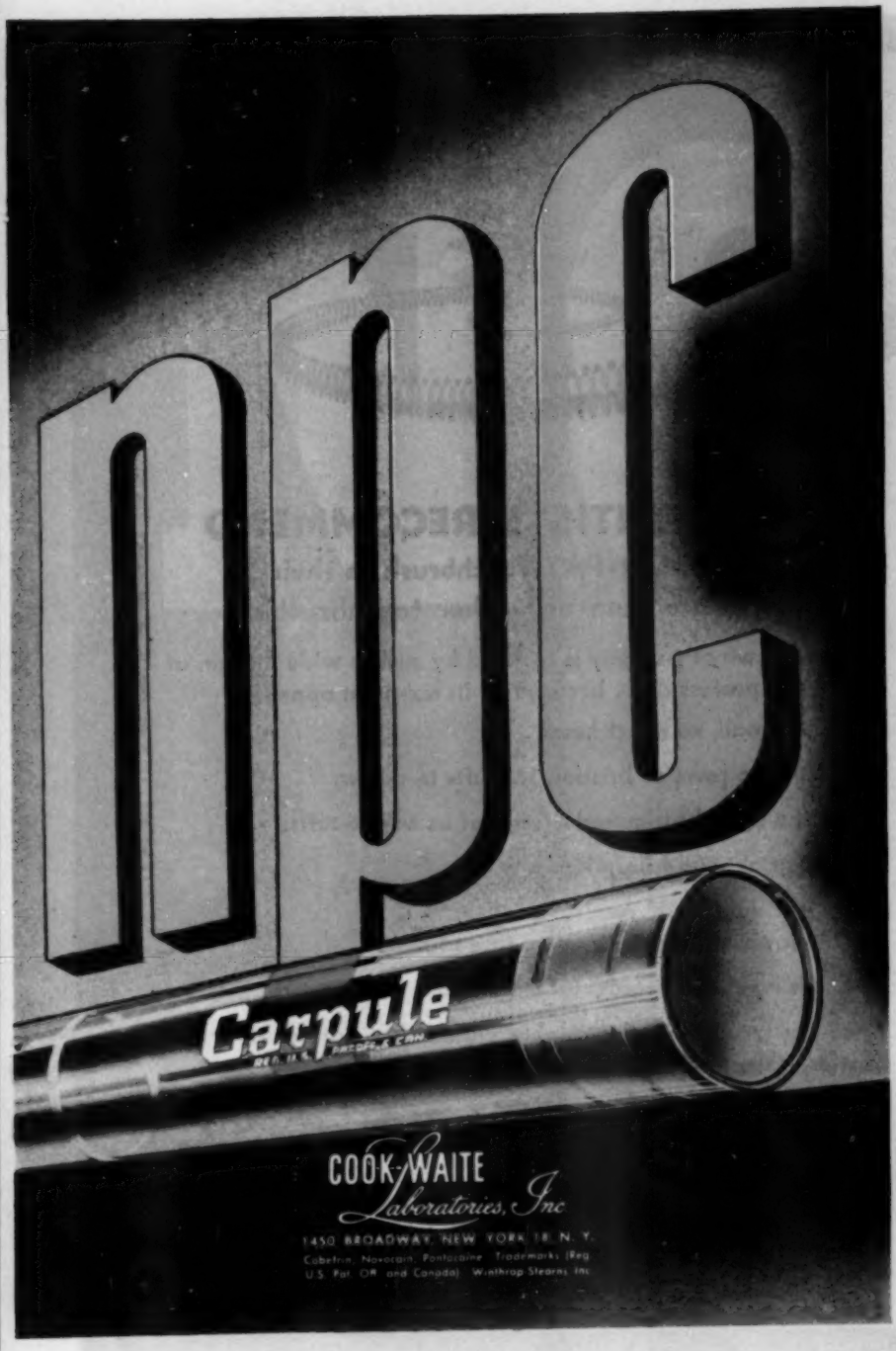
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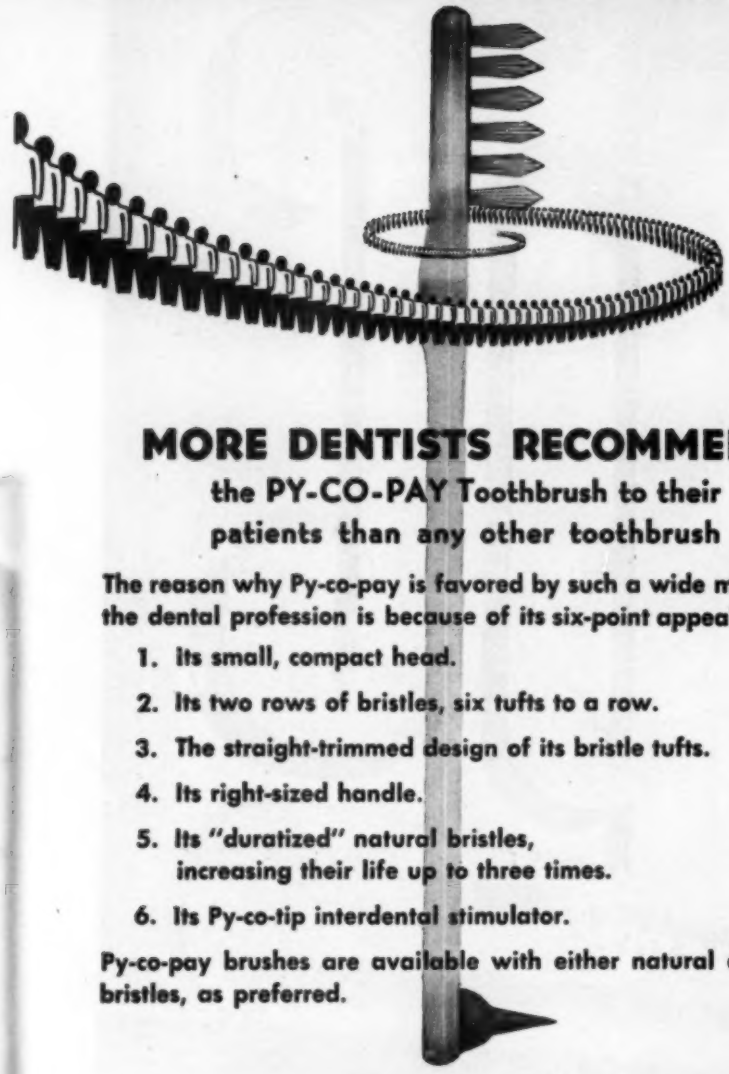

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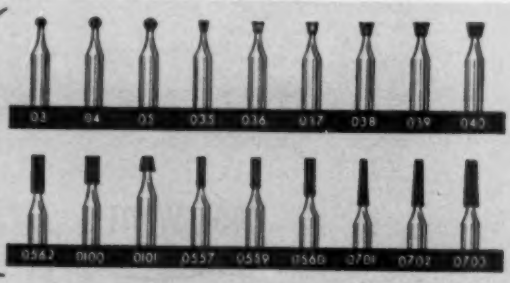

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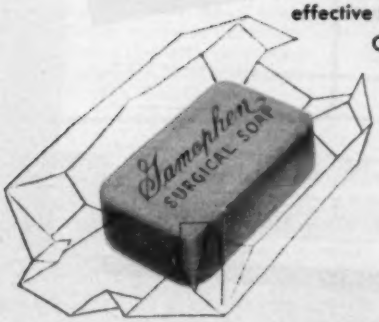

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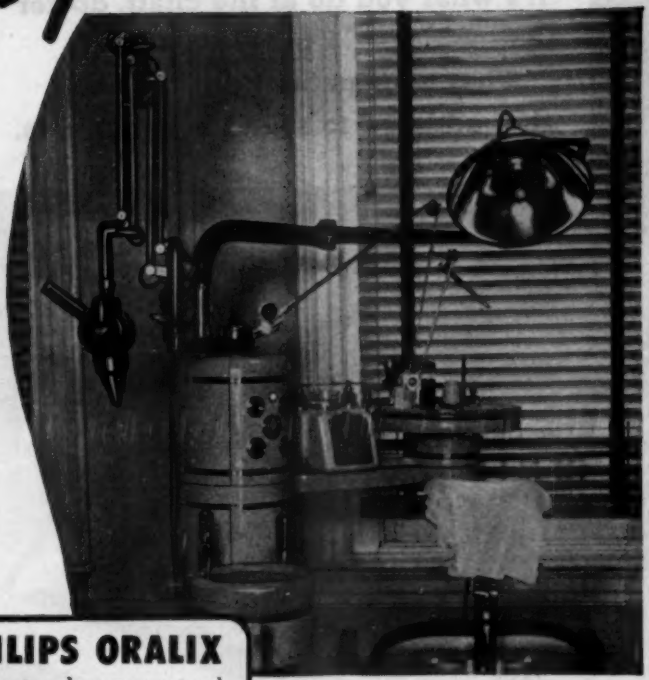

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THE Journal OF THE AMERICAN DENTAL ASSOCIATION

Polyantibiotic treatment of pulpless teeth

Louis I. Grossman, D.D.S., Dr.med.dent., Philadelphia

This is an era of great scientific achievement and of tremendous progress in medicine and dentistry—one which has witnessed the introduction of sulfonamides and antibiotics. It is also an era of considerable progress in endodontics. The dream of sterilizing the root canal of an infected pulpless tooth in one treatment is today much closer to realization than ever before. Intelligent treatment with selected antibiotics should make it possible to obtain sterility of almost all pulpless teeth in one or two treatments. This presupposes judicious selection of cases for treatment coupled with adequate mechanical-biologic preparation and irrigation of the canal before sterilization with antibiotics is attempted.

The term "polyantibiotic" is new. It denotes treatment simultaneously with two or more antibiotics. The term antibiotic was introduced by Waksman[1] to define a chemical substance derived from living organisms which inhibits the growth of, or destroys, other microorganisms. More than 400 antibiotics have been prepared from bacteria, fungi and actinomycetes but only a few of these are highly destructive to microbial cells and are nontoxic to the cells of the host.

Much still has to be learned about antibiotics, their mode of action, their spectrum or range of activity against microorganisms, their cytologic reactions, and even their pharmacologic effects. Considerable workable information is available concerning a handful of better-known antibiotics. The best use of this knowledge in its application to endodontic practice should be made and such knowledge should be supplemented by *in vitro* tests and by clinical studies.

Efforts to reduce the time consumed in treating infected pulpless teeth have engaged the attention and time of those interested in endodontics for the last quarter of a century or more. This has been partly due to the realization that

Department of oral medicine, School of Dentistry, University of Pennsylvania.

1. Waksman, S. A. Distribution of antagonistic Actinomycetes in nature. Soil Science 54:281 (Oct. 19) 1942.

the number of treatments required to obtain sterility was often far greater than was economically feasible. The uncertainty of the number of treatments required to secure sterility of the root canal, and in many cases the uncertainty of the end result, were contributing factors which militated against widespread practice of endodontics. With polyantibiotic treatment, endodontic operations can now be placed on an economic level with other dental procedures as the entire operation of cleansing, sterilizing, and filling a pulpless tooth can be completed in about 1½ to 2 chairside hours. The actual chairside time consumed is not much greater than that required for preparing a cavity, taking an impression and cementing a gold inlay.

EARLY CHEMOTHERAPY

During and shortly after World War I, the development of synthetic dyestuffs in industry stimulated research into their antibacterial properties. The search for a dyestuff effective against pathogenic microorganisms culminated in 1933 when Foerster successfully treated an infant afflicted with perifolliculitis and attendant septicemia by means of an azo dye. This dye was suggested and given to him by Domagk who found it effective against streptococcal septicemia in mice. As it turned out, the child had a staphylococcal rather than a streptococcal infection but recovered nevertheless. The dye, Prontosil, a crude sulfonamide, introduced a new and effective weapon in chemotherapy. It had little to offer for endodontic treatment, however, because it was bacteriostatic rather than bactericidal and needed polymorphonuclear leukocytes to complete the destruction of the organisms. These leukocytes could not enter the root canal.

This significant advance in chemotherapy was rapidly superseded by penicillin seven years later. Penicillin introduced a new era in medicine and surgery—the era of antibiotics—and in endodontics as well, as it was found that penicillin was germicidal in high concentration against most of the organisms present in infected root canals.

PENICILLIN

Although penicillin was introduced into medicine in 1940, it was not until almost five years afterward that the first report appeared on its use for root canal treatment. This was undoubtedly caused by wartime restriction of the availability of the antibiotic for civilian use except for serious infections. Since then a number of reports[2-19] have appeared dealing

2. Adams, F. R. Penicillin in pulp canal therapy. D. Items Interest 66:1147 (Dec.) 1944.

3. Bender, I. B. Penicillin in root canal therapy: report of fifty-three cases. J.A.D.A. 34:99 (Jan. 15) 1947.

4. Bender, I. B., and Seltzer, S. The use of penicillin-streptomycin in the treatment of infected pulpless teeth. Oral Surg., Oral Med. & Oral Path. 3:1070 (Aug.) 1950.

5. Buchbinder, M., and Schwartz, B. S. Penicillin impregnated dental points: a clinical and laboratory report. J. D. Res. 27: 211 (April) 1948.

6. Crowley, M., and Harner, V. J. Penicillin sensitivity of streptococci isolated from root canal infections and the normal mouth. J. D. Res. 26:399 (Dec.) 1947.

7. Dunn, L. J. Use of penicillin in root canal therapy. J. 2nd Dist. D. Soc. (N. Y.) 31:255 (Oct.) 1945.

8. Grossman, L. I. Evaluation of antiobiotic agents for root canal treatment. N. Y. J. Den. 15:233 (June-July) 1945.

9. Grossman, L. I. Treatment of pulpless teeth with penicillin points. Pennsylvania D. J. 13:252 (May) 1946.

10. Grossman, L. I. Treatment of infected pulpless teeth with penicillin. J.A.D.A. 27:141 (Aug.) 1948.

11. Grossman, L. I. Preliminary report on the use of a penicillin-streptomycin suspension in endodontia. J. Endodontia 3:39 (July) 1948.

12. Maisto, O. A., and Muruzabal, M. La acción conjunta de la penicilina y sulfamidas en el tratamiento de los conductos radiculares. Revista Odontolog. 35:173 (April) 1947.

13. Ostrander, F. D.; Crowley, M., and Dowson, J. Clinical study of the treatment of root canal and periapical infections with penicillin. J. D. Res. 26:403 (Dec.) 1947.

14. Pear, J. R. Preliminary case report on the treatment of apical infection with penicillin and streptomycin. J. Endodontia 1:32 (Sept.) 1946.

15. Plotkin, N. N. Use of penicillin in the treatment of the root canal. J.A.D.A. 34:459 (April 1) 1947.

16. Shaw, F. E.; Sprawson, E., and May, H. B. Bacteriologic examination of infected dental pulp canals and use of penicillin in pulp-canal therapy. Brit. M. J. 1:551 (April 21) 1945.

17. Stern, L. Preliminary report on penicillin in dentistry. Ann. Den. 3:1 (June) 1944.

18. Stewart, G. G. Preliminary report on penicillin in root therapy. J.A.D.A. 33:1281 (Oct.) 1946.

19. Weiner, L. Use of penicillin in clinical dentistry. J.A.D.A. 32:538 (May) 1945.

with the treatment of pulpless teeth with penicillin, most of which have been favorable.

As early as 1944, it appeared to the author[9] that if penicillin was to be used in endodontics at all, a nonaqueous solution or suspension would be necessary as aqueous solutions are unstable and would be both inconvenient and uneconomical to prepare. For this reason, early clinical trials were made with penicillin suspensions in peanut oil or propylene glycol. Raiziss[20] and Libby[21] had independently shown that penicillin in oil was stable for at least three months at the time of publication of their reports. Later, absorbent points impregnated with penicillin were used by the author[9] with the object of increasing the unitage of penicillin capable of being inserted in root canals and also supplying a stable and convenient form of penicillin for endodontic treatment.

Early attempts at treatment with penicillin were encouraging but not spectacular owing to the fact that the concentration of penicillin employed, about 5,000 to 10,000 units, was relatively low. It was not until the concentration of penicillin was increased about a hundredfold—from 5,000 units per cubic centimeter to 600,000 units per cubic centimeter—that the author[10] found unusually rapid sterilization of root canals as determined by cultures. As compared with the older root canal antiseptics, such as chloroazodin, beechwood creosote, metacresylacetate or monochlorphenol, treatment time was reduced about one half.

PENICILLIN AND STREPTOMYCIN

While this high concentration of penicillin was found to be effective, penicillin did not destroy either gram-negative organisms or yeasts which were recovered from root canals in a small number of cases. There were enough cases, however, to present a real problem. About the time the clinical study with penicillin was drawing to a close, a new antibiotic effective against gram-negative organisms—streptomycin—made its appearance. A freshly prepared aqueous solution of streptomycin calcium chloride complex, containing approximately 100,000 units of streptomycin per cubic centimeter, was tried in those clinical cases where gram-negative organisms; that is, *Escherichia coli* or *Aerobacter aerogenes,* had been isolated. This streptomycin solution was found to be effective, generally destroying the gram-negative organisms in one treatment. The addition of streptomycin not only eliminated the gram-negative organisms but also helped to kill some of the gram-positive organisms as streptomycin is effective in its own right against certain gram-positive organisms. In addition, the combination of penicillin and streptomycin displays a synergistic effect; that is, an effect which is greater than the sum of the effects of the two antibiotics when used separately. This synergistic, rather than additive, effect has been reported by a number of investigators (Fig. 1).[22-25]

The next step was to add the dry streptomycin powder to the penicillin suspension maintaining a high concentration of both antibiotics. This was done so that the finished product contained 500,000 units of penicillin and 0.5 Gm. (500,000 units) of streptomycin calcium chloride in 1 cc. of peanut oil. With the exception of certain enterococci, this combina-

20. Raiziss, G. W. Penicillin in oil suspension. Science 100:412 (Nov. 3) 1944.

21. Libby, R. L. Oral administration of penicillin in oil. Science 101:178 (Feb. 16) 1945.

22. Hunter, T. H. Speculations on the mechanisms of cure of bacterial endocarditis. J.A.M.A. 144:524 (Oct. 14) 1950.

23. Jawetz, E.; Gunnison, J. B., and Coleman, V. R. Combined action of penicillin with streptomycin or chloromycetin on enterococci in vitro. Science 111:254 (March 10) 1950.

24. Robbins, W. C., and Tompsett, R. The summation of penicillin and streptomycin activity in vitro and in the treatment of subacute bacterial endocarditis. (Abst.) J. Clin. Investigation 28:1043 (Sept.) 1949.

25. Nichols, A. C. Bactericidal action of streptomycin penicillin mixtures in vitro. Proc. Soc. Exper. Biol. & Med. 69:477 (Dec.) 1948.

tion of antibiotics destroyed all gram-positive and gram-negative organisms.

PENICILLIN-STREPTOMYCIN-CAPRYLATE SODIUM

During the period that penicillin alone or penicillin-streptomycin was being used, it was observed that an increasing number of yeast organisms, chiefly *Candida*, were being isolated from root canals. Neither penicillin nor streptomycin was effective against yeasts and apparently, as the other organisms were destroyed, it left the field clear for the growth of yeasts. In the past yeasts were only occasionally encountered as the commonly used root canal antiseptics destroyed them. Also, they were not looked upon as pathogenic organisms and were readily destroyed by electrolytic medication with a zinc iodide-iodine electrolyte. Following the use of penicillin or penicillin and streptomycin, the incidence of *Candida* increased to such proportions that it was felt necessary to add some agent to the antibiotics to destroy the yeast organisms. This paralleled a later observation of Harris[26] in another field who noticed

26. Harris, H. J. Aureomycin and chloramphenicol in brucellosis. J.A.M.A. 142:161 (Jan. 21) 1950.

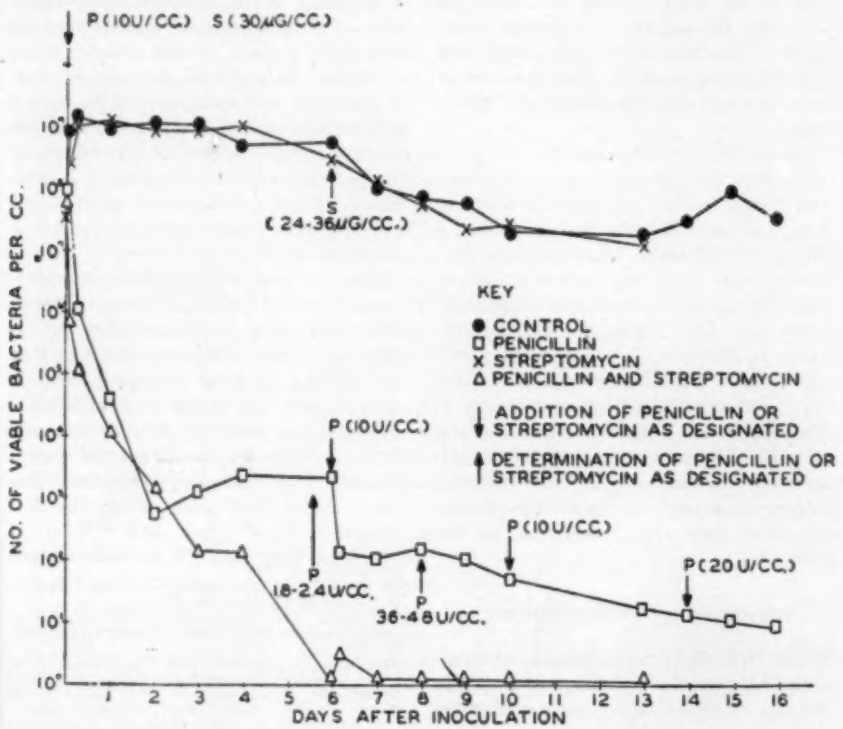

Fig. 1 • Graph showing effect of penicillin, streptomycin, and combination of penicillin and streptomycin on growing organisms. Note synergistic effect of combination of penicillin and streptomycin. (Courtesy of Hunter, T. H. J.A.M.A. 144:524 (Oct. 14) 1950)

that "*Monilia* (*Candida*) *albicans*, a normal inhabitant of the bowel, may overgrow and perhaps gather virulence following destruction of the intestinal bacterial flora by aureomycin or chloramphenicol." A survey made at the Dental School, University of Pennsylvania, of the types of organisms recovered prior to the use of antibiotics in root canals showed an incidence of 1 per cent *Candida* while for the period during which the antibiotics were in use the incidence beginning at 14 per cent rose to 19 per cent. While yeast organisms could readily be identified in the laboratory, the dentist in practice would not know whether the culture medium, when positive, contained pathogenic cocci or nonpathogenic yeasts. This problem was not easily solved as most agents which are destructive to yeasts are either too irritating for use in the root canal or are incompatible with penicillin or streptomycin.

After a number of *in vitro* tests during which several promising agents were tried with futile outcome, the author ran across a reference by Keeney, Ajello and Lankford[27] who found that the salts of certain fatty acids were highly effective against yeast organisms. Of these, caprylic acid was among the best. At about the same time sodium caprylate was introduced into medical practice for the treatment of yeast and fungous infections. Caprylate sodium was therefore tried in the laboratory against strains of *Candida* isolated from root canals and from saliva and it was found to be highly effective. Would caprylate sodium be compatible with the antibiotics? Laboratory tests and clinical trials were instituted simultaneously and in time it was determined that the addition of caprylate sodium did not alter the effectiveness of the antibiotics. And, what was equally important, yeast organisms were no longer recovered from root canal cultures. In fact, caprylate sodium was found to be so effective that when occasionally a *Candida* was recovered from a culture, it was suspected that leakage of the cavity seal had occurred and in nearly every case this proved to be so. Laboratory tests in the meantime had shown that the incorporation of the caprylate sodium with penicillin-streptomycin in a vegetable oil did not materially affect the stability of the antibiotics. Furthermore, caprylate sodium in its own right had an antibacterial effect on certain gram-positive organisms as well as yeasts.

PENICILLIN-BACITRACIN-STREPTOMYCIN-CAPRYLATE SODIUM

The problem of root canal sterilization was not completely solved, however, as enterococci were encountered from time to time. These organisms are resistant to penicillin except in high concentration. Enterococci are gram-positive cocci found in the intestinal tract and in the mouth. Examples of these are *Streptococcus fecalis*, *Streptococcus zymogenes*, and *Streptococcus liquefaciens*. In some cases, it required several additional treatments with the antibiotics before the enterococci were destroyed. Also, a resistant strain of *Staphylococcus albus* was occasionally encountered which was difficult to eliminate in only one or two treatments. In view of the fact that the ideal root canal antiseptic or germicide should destroy all organisms in one treatment, it was felt that an agent more highly destructive to enterococci should either replace the penicillin or be added to it. Aureomycin and chloramphenicol were considered but *in vitro* tests showed these to be less effective against gram-positive organisms than penicillin and later tests proved them to be far less effective against enterococci than bacitracin. Since replacement was not feasible, it was decided to supplement the effect-

27. Keeney, E. L.; Ajello, L., and Lankford, E. Studies on common pathogenic fungi and on Actinomyces bovis: in vitro effect of fatty acids. Bull. Johns Hopkins Hosp. 75:377 (Dec.) 1944.

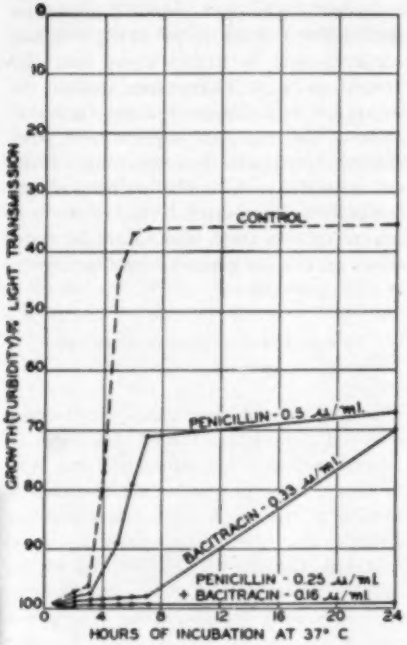

Fig. 2 • Graph showing synergistic effect of penicillin-bacitracin mixture is greater than additive effect of the combination. (Courtesy of Bachman, M. C. J. Clin. Investigation 28:864 (Sept.) 1949)

iveness of penicillin with the destructive action of bacitracin against enterococci. In addition to the supplemental effect, a synergistic effect had been shown to exist between penicillin and bacitracin by Eagle and Fleischmann[28] and by Bachman[29] (Fig. 2). Again the question arose: would bacitracin be compatible with the other antibiotics and with caprylate sodium? *In vitro* tests showed such compatibility. In time it was established clinically that, in a nonaqueous vehicle, all four agents are compatible with each other. This combination of three antibiotics and caprylate sodium has been found to destroy all varieties of organisms isolated from infected pulpless teeth.

THE NEWER ANTIBIOTICS

At this point it must be considered whether one of the newer antibiotics could be substituted for penicillin, bacitracin and streptomycin; or is there some antibiotic which is effective against all varieties of microorganisms and yeasts which may be encountered in infected root canals?

Aureomycin, chloramphenicol and terramycin have a broad spectrum of activity against microorganisms. They are effective against gram-positive and gram-negative organisms as well as against certain viruses and rickettsia. Of these, terramycin probably resembles aureomycin more closely in its effect than it does chloramphenicol. All three antibiotics may be grouped together, however, as they have many qualities in common both so far as effectiveness and activity are concerned. They are not as effective against gram-positive organisms as is penicillin and not as effective against gram-negative organisms as is streptomycin. Kirby[30] has stated: "In contrast to penicillin, the action of the three new antibiotics is primarily bacteriostatic rather than bactericidal." As if to confirm this observation, but in another field, Friedberg[31] found that aureomycin controlled endocarditis resulting from *Streptococcus fecalis* infection but stated that "the occurrence of relapses after the aureomycin therapy was completed suggests that this antibiotic alone will not suffice in most cases." For root canal therapy, a bactericidal agent rather than a bacteriostatic agent is necessary. These antibiotics have no effect on *Candida*

28. Eagle, H., and Fleischman, R. Therapeutic activity of bacitracin in rabbit syphilis and its synergistic action with penicillin. Proc. Soc. Exp. Biol. & Med. 68:415 (June) 1948.

29. Bachman, M. C. In vitro studies on possible synergistic action between penicillin and streptomycin. J. Clin. Investigation 28:864 (Sept.) 1949.

30. Kirby, W. M. M. Recent trends in antibiotic therapy. J.A.M.A. 144:233 (Sept. 16) 1950.

31. Friedberg, C. K. Subacute bacterial endocarditis: revision of diagnostic criteria and therapy. J.A.M.A. 144:527 (Oct. 14) 1950.

albicans and some fungicidal agent would still have to be added to the antibiotic. Furthermore, the synergistic effect derived from combinations of antibiotics such as penicillin and streptomycin or penicillin and bacitracin would not accrue from the use of a single antibiotic.

Neomycin also has a wide spectrum of activity but is effective primarily against gram-negative organisms. It is not likely that it would be effective by itself against the variety of organisms found in infected root canals. It is only slightly effective against yeasts. A clinical study with this antibiotic is in progress.

Humulon and lupulon are two antibiotics which in *in vitro* studies have shown a wide range of effectiveness against yeast organisms as well as against gram-positive and gram-negative organisms. These antibiotics are available only for investigational use at this time, not commercially. They have been studied in our laboratory and do not show the promise anticipated as they are less effective than some of the better known antibiotics.

It is entirely possible that a single antibiotic will be discovered which will be effective against gram-positive, gram-negative and yeast organisms but until the advent of such an antibiotic it is necessary to depend on polyantibiotic treatment with compounds such as penicillin-bacitracin-streptomycin-caprylate sodium.

VEHICLE

Simultaneously with the development of this combination of antibiotics, a constant effort was made to improve the vehicle which was used to suspend the antibiotics. Peanut oil was used at first. It made a rather coarse, granular suspension of the polyantibiotic mixture. Propylene glycol was later employed. Both agents had originally been used by the author[8] in 1944 for suspending penicillin. Propylene glycol formed a clear, syrupy suspension similar in appearance to corn syrup. The consistency of the former allowed the penicillin suspension or polyantibiotic paste to be introduced more readily into wide canals, the latter into narrow canals. In both cases a "pusher" type instrument such as a blunt iridio-platinum wire had to be used to carry the polyantibiotic mixture into the canal as, regardless of the vehicle, the suspension was rather viscous or pastelike and would not "wet" an absorbent point. Of the two suspensions, more of the polyantibiotic mixture in peanut oil could be inserted in the canal than when it was suspended in propylene glycol because the latter mixture had a tendency to follow the instrument on withdrawing it from the root canal so that it was not always possible to determine whether the root canal had been well-filled with the antibiotic. On the other hand, a fine absorbent point could be superficially coated with the polyantibiotic suspension in glycol, even though it was not wet by it, and in this manner the suspension could be introduced in a narrow root canal. The polyantibiotic suspension in either peanut oil or propylene glycol tended to decompose slightly at room temperature and turn yellow with age so that it had to be discarded after a three month period.

DC 200 SILICONE FLUID

After trying a number of vehicles over a period of time, a silicone fluid of a physiologically inert type was selected as the most satisfactory vehicle. It produced a smooth, nonirritating, workable paste with the antibiotics which could be introduced easily in the root canal. The silicone fluid used, DC 200, is a clear, thin, colorless fluid of approximately the same viscosity as alcohol. Chemically it is a methyl silicone available in various degrees of viscosity. As a vehicle, silicone fluid of 20 centistokes viscosity is preferable. A centistoke is a unit of viscosity. Upon trituration with the antibiotics and

caprylate sodium, a smooth, opal-white, soft paste results.

The silicone fluid selected was tested for possible irritation by injecting 1 cc. subcutaneously in rabbits, using sterile saline and propylene glycol as controls. The rabbits were observed for as long as a week and in no case was there evidence of an inflammatory reaction at the sites of injection of the silicone fluid or of the saline. Propylene glycol, however, caused a slight inflammation which subsided within 24 to 48 hours. Toxicologic studies carried out by Rowe and others[32] showed DC 200 to be of low toxicity.

The polyantibiotic and caprylate sodium paste in silicone fluid is stable at room temperature for one-half year. It does not need to be refrigerated. On prolonged standing, the silicone fluid tends to separate from the solid ingredients so that the paste may need to be stirred before use. Also, owing to slight evaporation of the silicone fluid from the container, the paste has a tendency to dry out. A few drops of the silicone fluid should therefore be added every few weeks to restore the paste to its original consistency.

PREPARATION OF THE ANTIBIOTICS AND CAPRYLATE SODIUM

The materials necessary for preparing the polyantibiotic combination are as follows:

Sterile ½ ounce wide-mouth bottle with ground glass stopper.

1,000,000 units potassium G penicillin.

10,000 units bacitracin.

1 Gm. streptomycin calcium chloride complex.

1 Gm. caprylate sodium.[33]

3 cc. DC 200 silicone fluid, 20 centistokes.[34]

The dry ingredients and silicone fluid should be placed in a clean, sterile mortar and triturated thoroughly with a sterile pestle. The paste should then be transferred to the sterile wide-mouth bottle. The bottle, mortar and pestle may be sterilized by dry heat or by boiling for five minutes after which time the glassware should be inverted on a sterile towel so that the water runs off until thoroughly dry. The bottle should then be labeled, marking the date of preparation on the label.

A homogenized smooth polyantibiotic paste which is marketed in a carpule and can be extruded through a 23 gage needle is now available. This simplifies insertion of the polyantibiotic paste in the root canal. Also, being sealed in the carpule, it does not dry out.

TECHNIC OF APPLICATION

To use the penicillin-bacitracin-streptomycin-caprylate sodium paste, the ground glass stopper is removed from the bottle and is placed in an inverted position on the tray. A small amount of the paste is removed from the bottle with a sterile iridio-platinum wire and is placed on the inverted glass stopper. Only an iridio-platinum instrument should be used in transferring the antibiotic paste from the vial to the glass stopper, or from the glass stopper to the root canal. A steel instrument, used repeatedly, will decompose the polyantibiotic paste. A small quantity of paste, about the size of a pinhead, is then transferred from the stopper to the root canal by means of the iridio-platinum wire. This is repeated a number of times until the canal is well filled. The excess paste remaining on the stopper is removed with a cotton roll and discarded. The stopper is then flamed and returned to the bottle. A short, blunt absorbent point is placed in the root canal to bring the paste into intimate contact with the canal wall and to serve as a plunger for carrying the paste to the apical foramen.

32. Rowe, V. K.; Spencer, H. C., and Bass, S. L. Toxicological studies on certain commercial silicones and hydrolyzable silane. J. Indust. Hyg. & Toxicol. 30:332 (Nov.) 1948.

33. Strasenburgh & Co., Rochester, N. Y.

34. Dow Corning Co., Midland, Mich.

The paste should not be forced through the foramen, however, as this may cause discomfort or even pain. A pledget of sterile cotton is then inserted in the pulp chamber and another pledget of cotton, dampened with chloroform, is used to wipe off any traces of the polyantibiotic paste on the cavity wall. The dressing is then sealed with an inner seal of gutta-percha and an outer seal of cement. In sealing the dressing, cement should not come into contact with the polyantibiotic paste as it will tend to decompose it.

EVALUATION OF EFFECTIVENESS

An evaluation of the data of 250 consecutive cases treated with the combination of antibiotics and caprylate sodium (128 school clinic cases and 122 private office cases) shows that it required an average of 1.4 treatments to obtain negative cultures (Fig. 3). The average number of treatments for office cases was 1.2 and for school cases was 1.6 treatments. This compares with an average of 4.0 treatments in a control group of equal number using the older root canal antiseptics. In 162 cases (64.8 per cent), or about two thirds of the total number of cases, negative cultures were secured after only one treatment with the polyantibiotics and caprylate sodium (Table 1). The culture medium, brain heart infusion broth or glucose ascites medium, contained penicillinase.

The root canals of these 250 cases were infected as determined either by control culture prior to treatment, or a control culture was unnecessary because there was a foul odor from the root canal, or else the canal had been exposed to the fluids of the mouth and was obviously infected. The clinical diagnosis in the cases reported here was as follows: necrosis or gangrene of the pulp, 123 cases; acute alveolar abscess, 31 cases; subacute abscess, 12 cases; chronic alveolar abscess, 54 cases; granuloma, 30 cases (Table 2). Of the 250 teeth treated, 159 were incisors or cuspids; 59 were bicuspids; and 32 were molars (Table 3). The majority of the patients (66 per cent) were under 29 years of age and all were in good health (Table 4).

Of the 122 office cases treated, periodontitis occurred in 6 cases following the initial treatment necessitating the removal of the dressing and the insertion of an analgesic, such as chlorobutanol in clove oil, in the canal. On subsidence of the symptoms, treatment was continued with the combination of the antibiotics and caprylate sodium. In addition, in 2 cases a severe periodontitis developed which made it necessary to remove the dressing and leave the canal open for

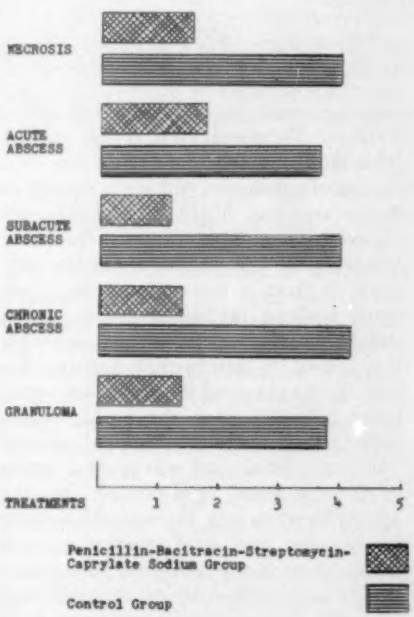

Fig. 3 • Bar diagram showing comparative number of treatments required to effect sterilization of a root canal, diagnosis for diagnosis and in an equal number of cases, in penicillin-bacitracin-streptomycin-caprylate sodium group and control group. Medication in control group consisted of chloroazodin, monochlorphenol, metacresylacetate or beechwood creosote

Table 1 • Average number of treatments required to obtain negative cultures

Treatments	School cases	Office cases	Combined
1 treatment	68	94	162
2 treatments	45	26	71
3 treatments	12	2	14
4 treatments	3	0	3
Average	1.6	1.2	1.4

Table 2 • Distribution of cases according to diagnosis

Diagnosis	School cases	Office cases	Combined
Necrosis or gangrene of pulp	64	59	123
Acute alveolar abscess	7	24	31
Subacute abscess	10	2	12
Chronic abscess	31	23	54
Granuloma	16	14	30
Total	128	122	250

drainage until the tooth became comfortable. Treatment was again started from the beginning and carried out to a successful conclusion without a repetition of the reaction. Slight periodontitis occurred in a number of other instances following the first treatment but this subsided in from a few minutes to a few hours without necessitating any special treatment. The periodontitis probably was caused by mechanical instrumentation. It was observed that irritation sometimes occurred when the paste became rather thick (before additional silicone fluid was added) and was packed tightly in the root canal. It is possible that the apical foramen was blocked off because of this and periapical exudate became dammed up in the periapical tissue causing pressure with resultant discomfort or pain. Or else some of the paste may have been forced through the apical foramen where concentration of the somewhat solid material in a small area acted as an irritant. No reliable records of irritation following the use of the combination in the 128 school cases are available but indications are that irritation occurred no more often than when the older medicaments were used, and that when it did occur it was almost always after the first treatment when there had been mechanical instrumentation.

The irritant action of the three antibiotics and caprylate sodium was also tested on rabbits using sterile saline as one control and a commercial preparation of penicillin, containing 300,000 units per cubic centimeter in aluminum monostearate, as another control. Subcutaneous injections of 0.1 cc. of the polyantibiotics and caprylate sodium, penicillin, and saline were given each rabbit following shaving of the skin and sterilization of the area. Observations of the sites of injection were then made over a period of two weeks. There was no evidence of inflammation following the injection of any of these agents but a small nodule persisted for about 10 days at the site of the

Table 3 • Distribution according to teeth treated

Teeth treated	School cases	Office cases	Combined*
Incisors and cuspids*	70 / 8 — 78	71 / 10 — 81	141 / 18 — 159
Bicuspids*	20 / 13 — 33	16 / 10 — 26	36 / 23 — 59
Molars*	5 / 12 — 17	5 / 10 — 15	10 / 22 — 32

*Numeral above line indicates upper tooth; numeral below the line indicates lower tooth.

Table 4 • Distribution by ages

Age	School cases	Office cases	Combined
19 or under	47	46	93
20–29	48	23	71
30–39	14	25	39
40–49	9	19	28
50–59	8	8	16
Age not given	2	1	3
Total	128	122	250

polyantibiotics and caprylate sodium injection, indicating slow absorption.

REPAIR OF RAREFIED AREA

While polyantibiotic treatment has reduced treatment time to a minimum, it is not the only factor which must be considered in determining the value of a root canal sterilizing agent. Both irritating potentiality and interference with repair must be taken into consideration. As already stated, irritation following the use of the combination of antibiotics and caprylate sodium was of minor degree except in a few cases and is, therefore, of little importance. Because an antibacterial agent proves its real value in infected, rather than vital pulp extirpation cases, an effort was made to determine whether repair occurred in those cases where areas of rarefaction had originally been present. A number of patients were recalled for check-up after six months to one and a half years following treatment. In most cases, roentgenologic evidence of complete or almost complete repair had occurred. (See Figures 4, 5, 6 and 7.)

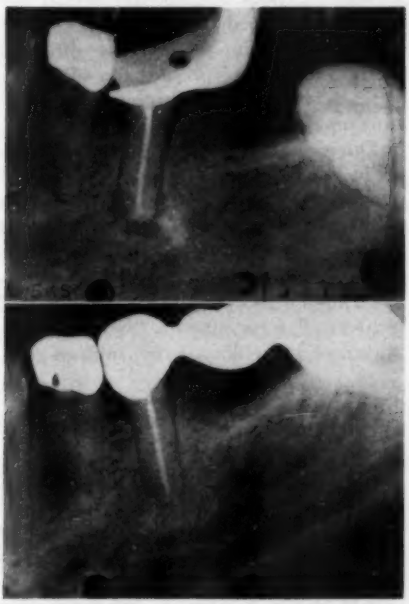

Fig. 4 • Above: Granuloma of lower bicuspid at time of filling root canal, following treatment with penicillin-bacitracin-streptomycin-caprylate sodium. Below: Same tooth nine months later

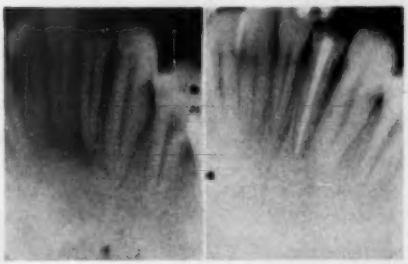

Fig. 5 • Left: Chronic abscess of lower incisor prior to treatment with penicillin-bacitracin-streptomycin-caprylate sodium. Right: Check-up film taken about eight months later

BACTERIAL RESISTANCE AND SENSITIVITY TO ANTIBIOTICS

The question of resistance of organisms originally sensitive but becoming resistant, must also be considered. This resistance of organisms is not to be confused, for example, with the resistance of organisms which belong to the gram-positive group but against which a gram-positive antibiotic is ineffective; for example, penicillin-resistant organisms. What is referred to is an acquired resistance to an antibiotic after a previous exposure to the same antibiotic.

Abraham and his colleagues[35] increased the resistance of *Staphylococcus aureus* by subculturing the organism with progressively increasing concentrations of penicillin. This characteristic of increased resistance was later confirmed by Ram-

35. Abraham, E. P., and others. Further observations on penicillin. Lancet 2:177 (Aug. 16) 1941.

Fig. 6 • Left: Preoperative film showing large area of rarefaction over right lateral incisor. The tooth was treated with penicillin-bacitracin-streptomycin-caprylate sodium. Right: Postoperative film taken 17 months later showing complete repair of bone

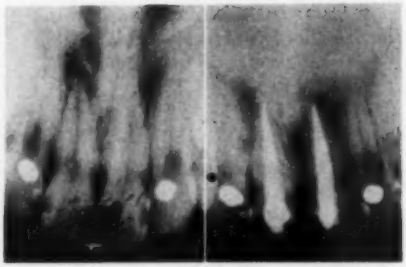

Fig. 7 • Left: Preoperative film showing areas of rarefaction around both central incisors. Right: Postoperative film showing repair of the periapical bone following treatment with penicillin-bacitracin-streptomycin-caprylate sodium

melkamp and Maxon.[36] McKee and Rake[37] used a concentration of penicillin which was not quite enough to inhibit growth of *Staph. aureus, Staph. pyogenes* and pneumococci and induced an increased bacterial resistance to penicillin. But, what is just as important, they observed that the virulence of the organisms was reduced as the resistance to penicillin increased. This observation was confirmed by Spink and others[38] who found that a strain of *Staph. aureus* was made 400 times more susceptible to the destructive effect of the blood when compared with the parent strain after increasing its resistance to penicillin.

Not all organisms exhibit equally the property of acquired resistance. While *Staph. aureus* has shown this property to a marked degree, *Diplococcus pneumoniae* and *Streptococcus pyogenes* are not as likely to acquire resistance to penicillin, according to McKee and Houck.[39] Furthermore, this property varies with different strains of the same organism.

The question of acquired bacterial resistance is a fascinating one but one which has probably been overemphasized from a clinical standpoint. Herrell[40] has stated: "The question of the development of resistance is indeed a fundamental one. It is my conviction, however, that although resistance on the part of the causative organism occasionally may develop among patients who are under treatment, poor therapeutic results are too often ascribed to this development of resistance on the part of the different pathogenic organisms. All too often the actual difficulty encountered is explainable on another basis."

During the time that penicillin alone or in combination with other antibiotics has been used in endodontics, thousands of root canals have been treated with not a single case reported in dental literature of sensitivity to the antibiotics when confined to the root canal. Buchbinder and Schwartz[41] have stated: "No single instance of penicillin allergy, such as rash,

36. Rammelkamp, C. H., and Maxon, T. Resistance of Staphylococcus aureus to the action of penicillin. Proc. Soc. Exper. Biol. & Med. 51:386 (Dec.) 1942.

37. McKee, C. M., and Rake, G. Activity of penicillin against strains of pneumococci resistant to sulfonamide drugs. Proc. Soc. Exper. Biol. & Med. 51:275 (Nov.) 1942.

38. Spink, W. W., and others. Comparative in vitro resistance of staphylococci to penicillin and to sodium sulfathiazole. Proc. Soc. Exper. Biol. & Med. 55:207 (March) 1944.

39. McKee, C. M., and Houck, C. L. Induced resistance to penicillin of cultures of staphylococci, pneumococci and streptococci. Proc. Soc. Exper. Biol. & Med. 53:33 (May) 1943.

40. Herrell, W. E. Penicillin and other antibiotic agents. Philadelphia, W. B. Saunders Co., 1945, p. 41.

41. Buchbinder, M., and Schwartz, B. S. Penicillin-impregnated dental points: a clinical and laboratory report. J. D. Res. 27:211 (April) 1948.

swelling or other untoward symptom, was encountered." Reports of allergy to antibiotics in medical literature, however, are not uncommon in patients who are sensitive to antibiotic drugs. It is conceivable that a minute amount of the antibiotic could diffuse out through the apical foramen, gain entrance to the blood stream, and set up an allergic reaction. While a great many teeth have been treated with penicillin and other antibiotics, the only reaction which has been brought to the attention of the author is one in which the antibiotic probably came directly in contact with the skin surface through accidental contact while applying the antibiotic in the root canal. The reaction reported was that of edema lasting a few hours. In not a single case of those reported here, or formerly, was there a reaction to the use of penicillin-bacitracin-streptomycin-caprylate sodium in the root canal which could be interpreted as an allergic reaction. In fact, in one case of known sensitivity to streptomycin, the patient objected to the use of the combination when she learned that it contained streptomycin. It was nevertheless used in the root canal without any reaction.

It must therefore be concluded from clinical observation that bacterial resistance to penicillin-bacitracin-streptomycin-caprylate sodium does not occur and that when this polyantibiotic paste is used in the root canal there is little or no likelihood of an allergic reaction developing.

DISCUSSION

A rapid method of sterilizing root canals with a polyantibiotic paste has been described. The technic of inserting the sterilizing agent in the root canal differs from other methods heretofore employed because the polyantibiotic mixture is a paste rather than a liquid. A description of the technic of using the paste together with a method of its preparation has been given. It should be emphasized, however, that reliance on polyantibiotics alone is unwarranted as they are effective only if the canal has been properly cleansed and enlarged. The really important phase of endodontic treatment is as much mechanical debridement of the canal, as the insertion of an effective sterilizing agent. The latter can exert its effect only if the former has been carried out adequately. To rely on polyantibiotic treatment without careful removal of debris in the canal is to invite failure. One supplements the other but is no substitute for it. In fact, greater enlargement of the root canal than has been done in the past is urged so that more of the polyantibiotic paste can be inserted in the canal. The greater the capacity of the root canal, the greater the amount of the paste that can be inserted and the greater is the likelihood of successful sterilization of the canal.

The criterion of an effective antibacterial agent suitable for use in infected root canals is its rapidity of sterilizing the canal in the least possible number of treatments as determined by culture. In this study, each tube of culture medium contained at least 4 units of penicillinase to inactivate any penicillin that might be carried over into the medium from the root canal. The culture medium itself, brain heart infusion broth or glucose ascites medium, neutralized any residual streptomycin. No inhibitory agent could be added to the culture medium for bacitracin or caprylate sodium because none is known. It should be pointed out, however, that (1) no neutralizing agent had been added to the culture medium in the control cases in which the older medicaments such as monochlorphenol, beechwood creosote and so forth, had been used; (2) the amount of antibiotic likely to be carried over on an absorbent point, after repeated drying of the canal, is likely to be insignificant; (3) even if carried over into the culture medium, this relatively insignificant amount would be greatly diluted by the large volume of culture medium.

SUMMARY

1. Two hundred and fifty infected pulpless teeth have been treated with a combination of antibiotics; namely, penicillin-bacitracin-streptomycin-caprylate sodium. Of this number 122 were private office cases and 128 were school clinic cases. The latter were included in this report to show that even in the hands of relatively inexperienced dental students good results can be obtained if a proper technic is followed.

2. In about two thirds of the cases (65 per cent) root canals were sterilized in only 1 treatment as determined by culture.

3. In 233 of the 250 cases (93 per cent) root canal sterilization was effected in either 1 or 2 treatments.

4. In only 17 of the 250 cases were 3 or 4 treatments necessary.

5. A combination of penicillin-bacitracin-streptomycin-caprylate sodium has effected the most rapid sterilization of root canals of any root canal sterilizing agent yet reported.

6. This combination is designed to destroy any type of organism likely to be encountered during treatment of infected root canals.

7. Periapical irritation occurred in a small number of cases but is of minimal clinical significance.

8. This treatment does not interfere with the repair of periapical bone. In some cases, teeth having relatively large areas of rarefaction responded favorably to treatment.

9. The method of preparing penicillin-bacitracin-streptomycin-caprylate sodium has been given and the technic of using the polyantibiotic paste has been described.

Radiopaque materials in the roentgenographic interpretation of periodontal lesions: a preliminary report

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The experiments and technics to be described in this paper were undertaken to investigate some of the materials which produce opaque shadows in the roentgenogram, and to devise a roentgen technic with which the materials can be employed to best advantage. Experiments have not been conducted with all of the materials available.

The first problem must be to establish an accurate roentgenographic technic; the second to find out whether any or all of these materials are capable of producing discernible radiopaque shadows in pockets; third to determine whether these shadows are of any real value to

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the dentist. This evaluation can be made only after much more clinical experience. Therefore, this paper is designated as a preliminary report and must be considered merely an approach to the subject.

VALUE OF ROENTGENOGRAMS IN PERIODONTAL DISEASE

A review of the role of the roentgenogram in the detection of periodontal disease will help to clarify the specific problem at hand.

1. The roentgenogram is an aid in the detection of inciting or contributing etiologic factors, such as the effects of trauma, lack of contact, foreign bodies, calculus, faulty dental restorations, and so forth. The roentgenogram may also reveal early indications of possible systemic background.

2. The roentgenogram is an aid in determining the relationship of alveolar bone support upon prognosis:

A. The amount of alveolar bone. Teeth which are crowded are supported by less interseptal bone than teeth more normally spaced. The same is true of teeth the proximal surfaces of whose crowns are nearly parallel, as opposed to those bell-shaped crowns which flare from the cervical line to the contact point, permitting a greater bulk of interseptal bone. The relatively small amount of interseptal bone in such mouths results in less favorable prognosis when periodontal disease attacks. When alveolar bone loss occurs the amount of tooth extruding from the alveolus (known as the clinical crown) increases in proportion to the amount still retained in and supported by bone (the clinical root), the lever arm increases, and the condition may finally be reached where the tooth becomes loosened and the prognosis becomes less and less favorable. Bone may also be lost, usually as a result of trauma, in the apical region while still present to some extent at the crest; it may also permit access of oral fluids, bacteria and food debris to the bifurcation of multirooted teeth. Thus the roentgenogram is an important factor in diagnosis and prognosis by revealing the amount of such bone loss.

B. The distribution of remaining bone. In some cases the tooth with an even amount of bone loss presents a less favorable prognosis than the tooth with more resorption on one surface than on the others, for in the former case the center of rotation follows the bone level, whereas in the case of unilateral bone loss the center of rotation will be found higher than the lower level of bone loss. Should this unilateral loss become extreme, establishing a communication between the apex and the oral cavity, other factors, such as the inability to control or eradicate infection at the base of the pocket, overshadows the fact that other surfaces may still have bone support. Thus the distribution of bone as revealed by the roentgenogram becomes important in determining prognosis.

C. The type of alveolar bone loss. The roentgenographic appearance of the alveolar crest can reveal important information on the rapidity with which the resorption of bone is taking place. An even, well organized crest indicates slower, more orderly resorption, such as would be seen in a case of purely physiologic resorption (if such a pure type actually exists). Opposed to this, the crest with a diffuse, uneven appearance is indicative of a more rapid resorption, such an image being produced as a result of resorption taking place at some depth below the crest before the inorganic bone salts have been completely resorbed at the crest. Thus the type of bone seen in the roentgenogram revealing the rapidity of bone loss becomes an important factor in determining prognosis.

3. The roentgenogram is an aid in the evaluation of treatment through periodic roentgen examinations to check on the amount of bone loss since treatment was instigated, and to determine the degree

of success in retarding the activity of the resorptive process.

RADIOPAQUE SHADOWS

Since, as a general rule, there is no correlation between pocket depth (as determined clinically) and alveolar bone destruction (as determined roentgenographically) it would seem highly desirable to be able to include both of these pathologic conditions in one roentgenogram to better visualize the relationship of one to the other to gain information on the amount, distribution and type of alveolar resorption, as well as to evaluate the results of treatment. The use in pockets of materials which produce radiopaque shadows in the roentgenogram is a means of producing such a visual demonstration of pocket depth. It is well to note here, however, that even though this could be accomplished perfectly, the clinical and roentgenographic findings must be tempered by a thorough understanding of the pathologic processes present. In summarizing his studies on the microscopic appearance of pockets involving the bifurcation of multirooted teeth, Glickman[1] states "the bifurcation may actually be involved microscopically without presenting any roentgenographic changes. . . . Even the slightest roentgenographic alteration in the bifurcation area may not be dismissed as inconsequential because it may represent far more significant microscopic changes." In other words, even were a material found which would outline perfectly a pocket in the roentgenogram the pathologic process may be active beyond the periphery of the shadow. It would be just as unreliable to think that the opaque shadow outlines the precise limits of the periodontal lesion as to suppose that the roentgenogram outlines the precise depth of a carious lesion. Therefore, at the outset it must be realized that no material or technic will be a panacea; it is only hoped that the present technics may add something in the field of research.

Before investigating radiopaque materials it becomes necessary to establish

1. Glickman, I. Bifurcation involvement in periodontal disease. J.A.D.A. 40:528 (May) 1950.

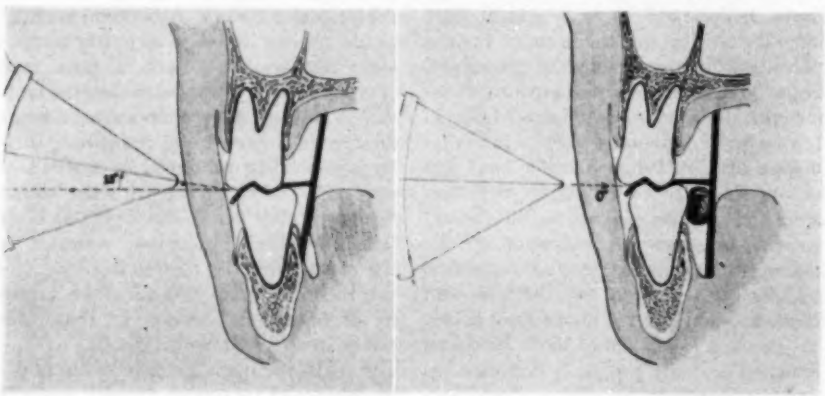

Fig. 1 • Left: Usual bitewing technic. Right: Cotton roll attached to lower half of packet holds packet in perpendicular position, permitting zero degree vertical tube angulation

a basic roentgen technic which will produce the most accurate images of these materials as possible, in order that the visualization of the resulting shadows may be of maximum value.

BASIC ROENTGEN TECHNIC

The bitewing film has been employed in these experiments as a means of producing a true image of the tissues involved in pocket formation (the region of the alveolar crest) for two reasons. (1) The film may be placed with ease directly behind the tissues involved, and both the maxillary and mandibular alveolar crests can be included on one roentgenogram. (2) The central rays of the x-ray beam, which are the most parallel, can be directed through the region under examination perpendicular to the film. This helps to reduce the distortion which is produced in a periapical roentgenogram when the central rays are directed at the apex of the tooth, the divergent rays in the periphery of the beam passing through the region of the alveolar crest.

The technic most commonly employed in producing bitewing films has been altered for these experiments.

The posterior type 3 bitewing film as marketed at present is narrower by 4 mm. than the periapical film. In mouths in which extensive loss of the alveolar crest has occurred the type 3 film has been found to be so narrow that the full depth of the alveolar margin is not shown. Therefore, the wider periapical film has been employed as a bitewing.

As commonly placed, the bitewing packet does not form an angle of 90 degrees with the occlusal plane, for the sloping side of the palate forces the upper half of the film medially; this necessitates a vertical tube angulation of 8 to 10 degrees (Fig. 1, left). If the packet could be placed at 90 degrees to the occlusal plane the ideal tube angulation of zero degrees could be employed, reducing distortion still further. To achieve this, and still employ the wide film, it is necessary to keep the lower half of the film packet away from the tissues of the mandible. This can be done either with a rigid film holder, or by attaching a cotton roll to the lower half of the packet. This enables the packet to assume a position of 90 degrees to the occlusal plane and permits a vertical tube angulation of zero degrees (Fig. 1, right).

Placing the film medially to enable it thus to assume a perpendicular position increases the distance between the tissues being examined and the film, known as the object-film distance (Fig. 2). Such an increase produces a loss of detail on the film owing to an enlarged penumbra surrounding the image, a condition known as geometric unsharpness. To reduce this it becomes necessary to increase the distance from the source of the x-rays (the focal area on the anode of the tube) to the film, known as the focal-film or target-film distance. This procedure also eliminates another undesirable factor; namely, magnification of the image. Richards[2] has found that increasing the focal-film distance from 8 inches to 16 inches decreases magnification from 18.5 per cent to 8.5 per cent, assuming the film to be 1¼ inches from the teeth.

The intensity of the x-ray beam varies inversely as the square of the distance from the target; that is, doubling the focal-film distance (as from 8 inches to 16 inches) results in an intensity only one-fourth as great. This means that at 16 inches the exposure time must be four times as long as at 8 inches. Using a 3 second exposure at 8 inches would require 12 seconds at 16 inches, and this is impractical. The alternative is to employ a film that is four times "faster," permitting the original 3 second exposure at the increased distance.

The preceding interplay of fundamental physical and geometric factors

2. Richards, A. G. Roentgenographic technics made to order. J.A.D.A. 39:396 (Oct.) 1949.

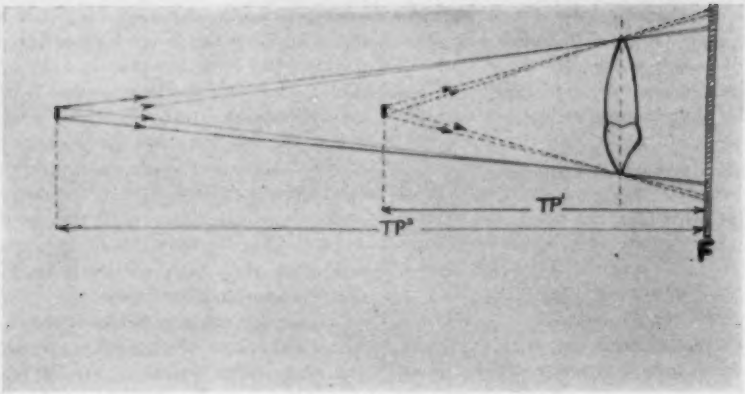

Fig. 2 • Illustrating width of penumbra as target-plate distance changes (exaggerated for illustrative purposes). TP¹ is target-plate distance of approximately three inches. Dotted lines represent emination of x-rays from target, or focal area. Criss-crossing of rays causes hazy shadow around image of tooth on film, F. This penumbra is decreased when TP² (twice TP¹) is employed. Distance between tooth and film, F, is object-film distance. Decrease of object-film distance would also decrease size of penumbra for any given target-plate distance

resolves itself into the following basic technic for the specific problem at hand:

1. Use of a bitewing film the width of a periapical film to include the base of deeper pockets.
2. Use of either a rigid film holder or cotton roll attached to the lower half of the packet to keep packet perpendicular.
3. Use of zero degrees vertical tube angulation.
4. Increase of focal-film distance to 16 inches by the use of an extension cone, to minimize geometric unsharpness and magnification.
5. Substitution of faster film to compensate for increased focal-film distance.

EXPERIMENTS WITH RADIOPAQUE MEDIA

Any material should fulfill the following criteria:

1. It must be relatively easy to introduce into pockets.
2. It must penetrate to the full depth of the pocket.
3. It must produce on the roentgenogram a radiopaque shadow that is discernible from the relatively radiopaque tooth structure and alveolar bone.
4. It must be noninjurious to the already inflamed gingival tissues.
5. It must be of such a nature that it can be reapplied accurately so that comparison with previous roentgenograms will mean something.

The materials selected for experiment may be classified as to their consistency as liquids, pastes, and solids.

Liquids: aqueous solution of barium sulfate; Lipiodol.

Pastes: barium sulfate; barium sulfate with Lipiodol; zinc oxide; zinc oxide with Lipiodol; bismuth paste; "bone" pastes; "bone" waxes (B.I.P.).

Solids: metal wires; gutta-percha points.

It would be impossible to report on each material; therefore, Lipiodol will be discussed here, and reports on the others must follow at a future date.

Lipiodol is a stable iodine addition

product of poppy seed oil, each cubic centimeter containing 540 mg. (40 per cent by weight) of iodine. It is marketed in 1, 2, 3, 5 and 20 cc. ampuls. The 1 cc. ampuls are recommended for dental usage, for once exposed to air Lipiodol deteriorates rapidly, and turns a dark color. This is evidence of free iodine, and in such state should not be used. In its normal state it is a viscid fluid of a yellowish color; it may be rendered less viscid by the addition of ethyl oleate, one of the recognized wetting agents.

Its effects on the tissues were enumerated in a report on iodized oils by the council on pharmacy and chemistry of the American Medical Association,[3] which states in part "Iodized oils . . . have the property of giving sharp shadows, but little local irritation, and practically no systemic effects. . . . Some iodized oils cause considerable direct irritation, especially the animal oils; but with the accepted medicinal brands the direct irritation is so slight that it has been demonstrated only for subarachnoid injections." Lipiodol is a medicinal brand of vegetable (poppy seed) oil and no irritating qualities have been demonstrated in dental usage. It bears the seal of acceptance of the Council on Pharmacy and Chemistry of the American Medical Association.

It was used experimentally in the following manner: The part of the mouth to be examined was isolated with cotton rolls to prevent the saliva from carrying the oil away. Lipiodol was picked up between the closed beaks of cotton pliers and carried into the pockets. Slight opening of the beaks within the pocket permitted release of the oil. When a sufficient quantity had been introduced any excess was wiped from the gingiva to prevent a false shadow, and a bitewing roentgenogram was taken using the technic described. These roentgenograms revealed that the oil, when carried into the pocket in this manner, did not fill the pocket sufficiently to produce a shadow; therefore, this technic was discarded. Another method of application was by saturating a paper root canal point with the oil and carrying the point into the pocket. This was found wholly unreliable, as the wet point bent so that the operator could not be sure where he was placing it. The third method proved to be the easiest; namely, using a Luer type syringe and a blunted 21 gage needle to inject the oil. This placed the material where it was wanted, but it was found that the pressure needed to expel the viscous fluid caused the needle to traumatize the tissues. Therefore, a six inch length of narrow rubber tubing was placed between the needle and syringe to prevent pressure from being exerted on the tissues. This also facilitates placement of the needle into difficult pockets as the syringe is held outside the mouth. Roentgenograms taken following this injection method revealed only a faint white linear shadow in the region of the pocket, even though clinically it appeared that the pocket had been pumped full of the oil by the injection. Therefore, this technic cannot be considered reliable. However, experiments are now being conducted with wetting agents in an attempt to lessen its viscosity.

The most satisfactory technic (to date) is to saturate a fine rope of absorbent cotton with Lipiodol and tuck the cotton into the pocket with a periodontal probe. Roentgenograms taken with this technic produced the best radiopaque shadows because: (1) the cotton fibers hold a quantity of oil sufficient to produce a shadow in the roentgenogram; (2) the operator can be more certain that he is placing the cotton to the base of the pocket. Saturating dental floss with Lipiodol is not feasible since the waxed floss does not absorb oil as well as cotton. While it is too early to state that roent-

3. Council on Pharmacy and Chemistry. Dangers of the injection of iodized oils. J.A.M.A. 99:1944 (Dec.) 1932.

genograms taken with this technic are of any real value in interpretation of periodontal lesions, it does seem that they help the dentist visualize the difference between buccal and lingual pocket depths better than without the oil.

Lipiodol fulfills the criteria thus:

1. When used with the technic described it can be easily introduced into most pockets.

2. The number of clinical trials to date is inadequate to draw any conclusions on whether or not Lipiodol will outline the full depth of all pockets.

3. When injected into cystic cavities, fistulous or sinus tracts and salivary ducts, Lipiodol usually produces a definite, well defined radiopaque shadow because of the large quantity of oil present; the contrast is even more outstanding when the surrounding structures are relatively radiolucent. In pockets, however, a much smaller amount can be accommodated, and radiopaque tooth structure is superimposed over it so that the degree of contrast is not as great as might be desired.

4. No irritating qualities have been demonstrated.

5. Whether or not Lipiodol can be reintroduced into pockets with sufficient accuracy to permit comparison with previous roentgenograms can be determined only after many more clinical tests have been made.

SUMMARY

1. A preliminary report is presented outlining experiments with materials which may produce opaque images of periodontal pockets in the roentgenogram.

2. Certain limitations are stressed.

3. Radiopaque shadows *per se* are useless unless a carefully standardized roentgen technic is employed. Such a technic, using bitewing films, is presented.

4. Due to the number of materials and combinations of materials under investigation it is possible at this time to report on only one of the more promising; namely, Lipiodol. The best results to date have been obtained with cotton, saturated with Lipiodol, which is tucked into the pocket.

5. Investigations are continuing and the results will be reported when sufficient data have been compiled.

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Treatment of Periodontitis • Periodontitis is not a disease from which a patient can be considered "cured" following a course of therapy—unless that therapy be the extraction of the teeth. It is a disease which must be continually kept in abeyance, and, therefore, one which demands continued prophylactic measures. Because the periodontist is faced with a problem of maintaining a periodontium at optimal function and repair, he necessarily must adhere to sound biological principles in his treatment, utilizing the accepted studies on tissue metabolism in health and disease. *Dickson G. Bell and Robert W. Rule, Jr., "The Periodontal Lesion," The Journal of Periodontology 21:70, April 1950.*

Effect of dentifrices on lactobacillus counts: antibiotics and enzyme inhibitors

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Investigations using school children for the study of dental caries prevention have met with varying degrees of success. Some reporters indicate a reduction in dental caries by simple oral hygiene procedures,[1] while others have used dentifrices containing an antibiotic[2, 3, 4] or an enzyme inhibitor[5, 6] with contradictory results. This study was initiated as a screening test to determine the probable effectiveness of dentifrices modified with antibiotics or enzyme inhibitors in prevention of dental caries in naval personnel.[7] The oral lactobacillus count was adopted as the criterion for measuring the efficiency of the agents.

MATERIALS AND METHODS

The subjects for this study were 13 randomly taken companies of volunteer male recruits, 60 men per company, undergoing basic training at Great Lakes Naval Training Center. They represented practically all the states east of the Mississippi River valley and their ages ranged from 17 to 25 years, with an average of 18½ years.

All subjects were maintained on a rigidly uniform schedule, including diet, rest and exercise.[8] The first two companies selected were divided into two sections of 30 recruits each; the other companies were not divided. The four sections and 11 companies provide the 15 groups referred to in this study. The fifth and eleventh groups were designated

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This study was undertaken at the clinics and laboratories of the dental department research facility, U.S. Naval Training Center, Great Lakes, Ill., and Northwestern University Dental School, Chicago. This work was partially supported by grants by the Colgate Palmolive Peet Co.

The usage of commercially available products or preparations in connection with this project cannot be construed as indicating endorsement or approval of such products by the naval service or by the authors.

The opinions and assertions contained in this article are the private opinions or assertions of the authors and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

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2. Hill, T. J., and Kniesner, A. H. Penicillin dentifrice and dental caries experience in children. J. D. Res. 28:263 (June) 1949.

3. White, B. J.; Kniesner, A. H., and Hill, T. J. Effect of small amounts of penicillin on the oral bacterial flora. J. D. Res. 28:267 (June) 1949.

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5. Kesel, R. G., and others. Ammonia production in the oral cavity and the use of ammonium salts for the control of dental caries. Am. J. Orthodont. & Oral Surg. 33:80 (Feb.) 1947.

6. Kerr, D. W., and Kesel, R. G. Two-year caries control study utilizing oral hygiene and an ammoniated dentifrice. J.A.D.A. 42:180 (Feb.) 1951.

7. There were 118,000 carious lesions observed in the teeth of recruit naval personnel received at the U.S. Naval Training Center, Great Lakes, Ill., during 1949. Unpublished data.

8. Jarrett, E. T.; Zelle, M. R. and Hollaender, A. Studies of the control of acute respiratory disease among naval recruits. 2. Limitations of ultra violet irradiation in reducing air-borne bacteria in barracks with a low ceiling. Am. J. Hyg. 48:233 (Sept.) 1948.

as control groups "A" and "B," respectively, and were permitted to use any commercial dentifrice of choice. In all cases a three week pretest period was maintained. During this interval the men were permitted to continue the hygiene procedures as taught by the dental department on their induction into the Navy. During this interval paraffin stimulated saliva specimens were collected from each recruit in a group on three successive days. The specimens were collected immediately after the recruits arose at 5:30 A.M., prior to smoking, ingestion of food, water or the institution of oral hygiene procedures. Oral lactobacillus counts[9] and colorimetric determinations[10] for caries activity were ascertained on each of the collected specimens, and these results became the pretreatment values for the group.

After the pretreatment values had been determined for a group, a new toothbrush of good quality and a compounded dentifrice, which had been modified with an antibiotic or an enzyme inhibitor, were supplied to each recruit in the group. Instructions in accepted oral hygiene procedures were again given and monitored until all steps were understood. Particular emphasis was given to the proper use of the toothbrush and quantity of dentifrice. The individual recruit was further instructed to brush his teeth on rising and before retiring and to indicate this accomplishment on a routine check-off sheet designed for this purpose. In order to avoid poor or misunderstood brushing technics each recruit was required to demonstrate the procedure taught, and to remain under supervision during the period the recruits used the assigned dentifrice. Three paraffin-stimulated saliva specimens were again collected during the sixth or seventh week of the test, and lactobacillus counts and colorimetric tests for caries activity were again determined on each specimen. The results of these tests became the posttreatment values for the groups. The described procedure was maintained uniformly from group to group until the 15 groups had completed their period of study.

The compounded paste dentifrices used in this study were of a neutral base type composed essentially of dicalcium phosphate, glycerol, gums, flavor, a sulphated glyceride of coconut oil, fatty acid and water. The powder dentifrices were the same as the paste dentifrices except water, glycerol and certain gums were omitted. The basic dentifrices were modified with an antibiotic or an enzyme inhibitor as indicated in the accompanying table.

RESULTS AND DISCUSSION

The lactobacillus count from each specimen was recorded for the pretreatment and posttreatment periods and the mean, median and the percentage of negative counts were calculated. In addition to this, the mean values for the colorimetric caries tests were also calculated. These data are found in the table.

It is recognized that salivary lactobacillus counts are not considered an absolute criterion of caries activity, particularly in regard to degree of activity, but it is generally considered that a negative or low count is usually associated with low caries activity. It is thought that the caries-inactive cases will present only a sporadic positive count, while persistent positive counts are associated with caries activity. The fluctuation of positive counts is usually the rule rather than the exception. The fluctuation of positive counts in this investigation follows the general pattern, which makes a statistical analysis difficult to interpret. Nevertheless, a statistical analysis was performed

9. Hadley, F. P. Quantitative method for estimating Bacillus acidophilus in saliva. J. D. Res. 13:415 (Oct.) 1933.

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Table • Pretreatment and posttreatment lactobacillus evaluations in groups of Navy personnel using dentifrices modified with antibiotics or enzyme inhibitors

Dentifrice	No. of men	Mean lactobacillus count x 1,000		Median lactobacillus count x 1,000				% Negative counts†		Colorimetric index (mean)	
		Pretreated	Posttreated	Pretreated Med.	Pretreated Range	Posttreated Med.	Posttreated Range	Pre-treated	Post-treated	Pre-treated	Post-treated
Powder with 0.07% penicillin*	48	60 ± 4.4	4 ± 0.8	53	5.0–152	1	0.0–22	0	63	1.5	0.5
Paste with 0.07% penicillin*	51	100 ± 9.2	49 ± 6.8	85	11.0–352	40	0.3–219	0	10	1.7	1.0
0.08% tyrothricin	29	120 ± 32.7	70 ± 14.3	83	10.0–514	49	0.0–313	0	7	1.6	1.8
0.2% tyrothricin	54	45 ± 6.6	51 ± 9.1	26	0.0–193	38	1.0–408	2	2	1.6	1.3
0.5% tyrothricin	51	96 ± 12.8	54 ± 10.3	77	14.0–528	35	0.0–459	0	6	1.8	0.7
Powder with 0.5% tyrothricin	52	74 ± 20.6	60 ± 21.4	42	0.0–1,000	39	0.0–472	12	16	1.8	0.8
Paste with 0.04% streptomycin	27	151 ± 22.5	56 ± 12.1	61	5.0–1,309	42	0.0–235	0	15	1.5	1.5
0.1% streptomycin	54	63 ± 8.5	71 ± 7.7	46	0.0–422	58	5.0–227	4	0	1.3	1.2
0.5% streptomycin	51	57 ± 6.9	27 ± 4.5	40	0.3–213	16	0.0–128	6	14	1.5	0.9
0.016% gramicidin	26	46 ± 6.1	42 ± 12.3	40	0.0–120	24	0.2–268	23	8	1.2	1.4
0.1% bacitracin	53	33 ± 3.8	44 ± 8.3	32	0.0–96	35	0.0–165	4	4	1.5	1.0
0.5% ACR-36	48	48 ± 5.2	72 ± 7.4	42	0.4–176	57	0.8–288	6	0	1.5	1.1
5.0% dibasic ammonium phosphate and 3.0% urea	28	44 ± 5.9	66 ± 15.3	40	0.0–118	36	0.0–360	18	0	1.3	1.5
No added reagent "A"	47	36 ± 4.2	32 ± 4.8	35	1.0–126	22	0.0–117	9	15	1.1	1.0
No added reagent "B"	52	80 ± 8.8	46 ± 6.2	51	3.0–389	37	0.0–228	0	12	1.6	1.4

*Potassium penicillin.
†When two or more of three consecutive lactobacillus counts were zero the final value was recorded as negative.

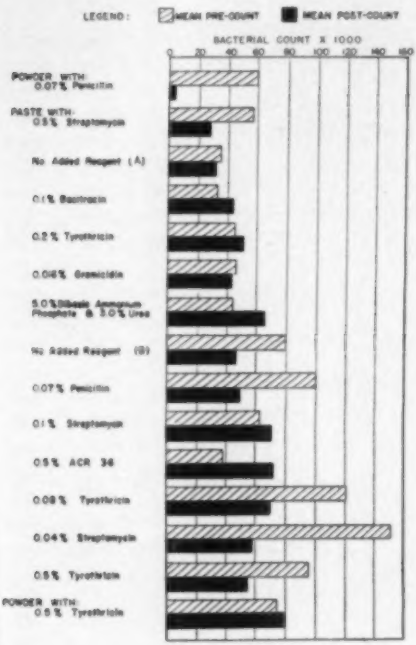

Fig. 1 • Pretreatment and posttreatment mean lactobacillus counts in groups of naval personnel using dentifrices modified with antibiotics or enzyme inhibitors

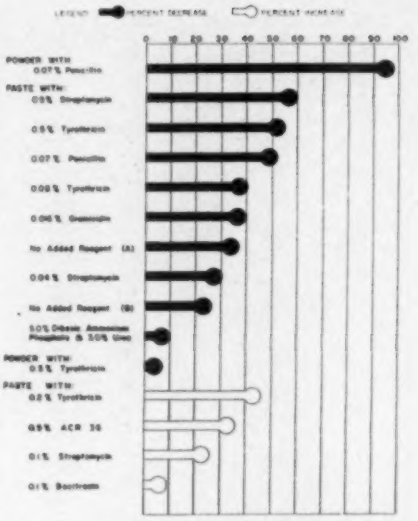

Fig. 2 • Per cent change in pretreatment median lactobacillus counts in groups of naval personnel using dentifrices modified with antibiotics or enzyme inhibitors

and a comparison of the means yields statistically significant values as follows:

Dentifrice	Sigma
0.07 per cent penicillin powder	12.5
0.07 per cent penicillin paste	4.7
0.5 per cent streptomycin paste	3.7
No added reagent (B)	3.0
0.04 per cent streptomycin paste	2.7
0.5 per cent tyrothricin paste	2.5

These results are somewhat perturbing inasmuch as the changes in mean values of the "No added reagent B" group were significant with a critical ratio of 3.0. Under these conditions one might question the results of any of the groups with a sigma value of less than three or even to question the validity of the mean lactobacillus counts as a criterion of caries activity. Nevertheless, as the lactobacillus counts are considered only a qualitative measure, pronounced differences in the mean values are usually considered a trend and may be used as a screen for the more complicated and expensive clinical tests.

The most striking results in this investigation are those obtained with penicillin powder. In the case of this dentifrice, there is a dramatic difference between the pretreatment and posttreatment lactobacillus values regardless of which criterion is used for the comparison. The mean, median and number of counts under 10,000 (Fig. 1, 2 and 3) of the posttreatment period are in noticeable contrast to the pretreatment values and with the values of either "no added reagent group." Furthermore, the results of the Snyder test tend to reflect these changes.

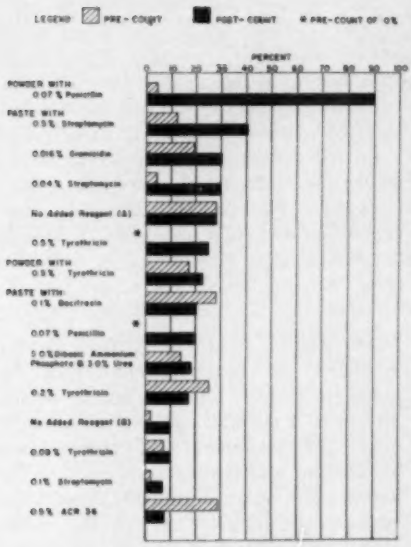

Fig. 3 • Per cent of pretreatment and post-treatment lactobacillus counts under 10,000 in groups of naval personnel using dentifrices modified with antibiotics or enzyme inhibitors

Such consistent results were found with no other dentifrice tried, although favorable changes were observed in some of the others. The changes observed with the penicillin paste were very surprising as most of the antibiotic activity was destroyed by the end of the experiment. It is also interesting to note that ACR 36, a very excellent enzyme inhibitor, yielded a slight increase in lactobacillus count. When one considers the results as a whole, it is obvious that the 0.07 per cent penicillin powder is by far the most effective in the reduction of the lactobacillus counts. In view of the recent results of Zander[4] this is not surprising. Thus, if the above results are a criterion of what one would obtain in a clinical test, the other antibiotics or enzyme inhibitors should not be as effective as the penicillin powder. In view of this, a clinical test of the other dentifrices is not warranted.

SUMMARY

The effectiveness of 13 potentially therapeutic dentifrices in reducing the oral lactobacillus counts of individuals was determined. It was found that of those tested the powder containing 0.07 per cent penicillin was the most effective.

Medicine Not a True Science • Most of us seem to have forgotten that medicine and its various subdivisions or specialties is not a true science in the sense in which mathematics and physics are sciences. Science is not a collection of facts but the organization and generalization of those facts and the formulation and understanding of the general laws which govern them. President Conant of Harvard University emphasizes the fact that the great advances in science have come, not from the collection of new data, but from the development of new concepts. We have always been aware in a superficial way that the emotions and personality make-up of a patient may affect the physiology and pathology in that person and later may even effect anatomic changes. In the same way, we have known also that various therapeutic measures, be they surgical, chemical or psychical, may produce varying results in different patients or in the same patients at different times depending on their physical and emotional state at the time of treatment. *Bernard B. Raginsky, "Some Psychosomatic Aspects of General Anesthesia," Anesthesiology 11:396, July 1950.*

Gingival massage

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Home care of the mouth is advocated by the dental profession generally in an attempt to prevent caries and periodontal disease. In periodontal practice, the prevention of these diseases is a vital concern. Instruction in home care is utilized as one of the most important therapeutic measures in the course of treatment. It is used to avert periodontal disease at new locations where the patient has already demonstrated his predisposition to the disease. Consequently, the periodontist, because of his broader application of home care, is even more interested in it than is the general practitioner.

Recently, one phase of home care, gingival massage, has been provoking sincere and spirited debate.[1,2,3] The principal controversial statements relating to the use of massage have been: (1) that there is a lack of scientific proof of its usefulness; (2) that there is no logical rationale for its use, and (3) that it is possible for massage to lead to subacute bacterial endocarditis, a disease which had, until recent years, an extremely high mortality rate.

At this point it is pertinent to review briefly the commonly accepted measures for oral hygiene, especially as they apply to the patient with periodontal disease. Some of these procedures are valuable as therapeutic aids in the treatment of common forms of chronic periodontal disease, particularly marginal gingivitis, chronic gingival hyperplasia and periodontitis.

Periodontal treatment is based on the reduction or complete removal of the etiologic factors, and the return of the tissues to a normal state is facilitated by procedures improving the gingival blood circulation and lymph drainage. For the latter purpose, oral hygiene instructions include the effective use of the toothbrush and dental floss, and, in special instances, interdental stimulators or toothpicks. All of these except the floss produce a degree of massage of the gingivae. Needless to say, the armamentarium for any one person should be held down to a minimum, as a top-heavy oral hygiene program can discourage him.

IMPROVED MASTICATORY FUNCTION

The beneficial effects of the cleansing and stimulating action of normal mastication are well appreciated by the dentist but the patient requires an explanation of its importance. The disadvantages of insufficient or excessive mastication in any part of the mouth are stressed. When indicated, the patient is advised to acquire appropriate dental restorations for improved function.

Presented before the Section on Periodontia, ninety-first annual session of the American Dental Association, Atlantic City, November 1, 1950.

1. Unscientific statements laid to dental literature; research urged. J.A.D.A. 33:760 (June 1) 1946.

2. Leonard, H. J. Is massage a valuable treatment in gingivitis and periodontitis? J. Periodont. 19:63 (April) 1948.

3. Lyons, H. Fiction and facts in periodontology: an appraisal. J.A.D.A. 39:513 (Nov.) 1949.

TOOTHBRUSHING

In chronic marginal gingivitis, chronic gingival hyperplasia and in periodontitis, toothbrushing plays a major role as a preventive and therapeutic measure. However, it must be stressed that use of the brush, even if only for tooth cleansing purposes, is definitely contraindicated in certain other oral or periodontal diseases such as when open mucous membrane lesions are present in acute ulcerative gingivitis. It is also contraindicated in the treatment of tubercular lesions, aphthous stomatitis, chemical burns or allergic reactions, and when there is mucous membrane fragility as in chronic desquamative gingivitis, frank scurvy and pemphigus, as well as in certain blood dyscrasias and in acute gingival or periodontal abscesses.

In the treatment of periodontitis it is advantageous to begin toothbrushing as a therapeutic aid early in treatment. The patient should be instructed at one of the first sessions but not until after the visit at which the removal of the heavier deposits of subgingival calculus has been completed. The rationale for such specific timing is as follows:

1. When brushing is initiated prior to the preliminary subgingival scaling, the tissues which are pressed by the massaging action of the brush against the underlying jagged or spiny calculus deposits can be punctured or otherwise traumatized by them, which may result in a deep infection. This may develop into an acute gingival abscess or may form a permanent fistulous opening through the gingival flap.

2. In most cases, the pathologically detached edematous gingival flap begins to shrink immediately after the first stage of subgingival instrumentation. This gingival recession results in the exposure of the root at the cervix and unless the newly exposed surfaces are kept meticulously clean they may become hypersensitive, and so make the use of scalers in the ensuing treatments more difficult.

3. The brushing instructions, regardless of the method selected, are generally taught in two or three sessions since many patients find it impossible to grasp several new procedures at one visit. Thereafter, during the course of treatment, the patient's brushing is checked several times in order to detect any deviation from the original routine, or until the brushing technic is well established. If brushing were not taught until the completion of all other treatment, several additional visits would be required.

It is not possible to discuss in detail the several effective methods of brushing available nor the types of brushes favored by various recognized authorities. There is no hard and fast rule on the choice of a method for general use and very often a combination of a number of methods is indicated according to the manual dexterity and dental anatomic variations of the individual patient. However, all the accepted brushing methods include a considerable amount of gingival massage if they are performed correctly.

DENTAL FLOSS

Dental floss is used generally to prevent the inception of caries near the contact points, but for the patient with periodontal disease it has additional value. Specific instruction in its use is therefore desirable. Soft, decomposing food adheres to the exposed proximal root surfaces in areas often missed by the brush and therefore is retained more or less continuously unless it is removed by floss. The food acts as a source of irritation to the gingivae and leads to cervical hypersensitiveness and early cavity formation.

Solid morsels of tenacious fibrous food tightly wedged in between adjacent teeth often cannot be removed by the brush and may detach the septal gingiva and

cause pocket formation and alveolar crest resorption. When the impacted food cannot be eliminated, the hazard may be materially reduced by the use of dental floss for the removal of the particles as soon after a meal as possible.

INTERDENTAL STIMULATORS

The interdental stimulator has numerous advocates who feel it is an effective implement in preventing and treating periodontal disease. On the other hand some authorities, who doubt the value of gingival massage generally, point to the possible harm resulting from its use. All oral hygiene measures, no matter how useful, may cause considerable trauma when improperly used. Therefore it is important for the dentist to watch for any evidence of such misuse during the patient's periodic posttreatment visits.

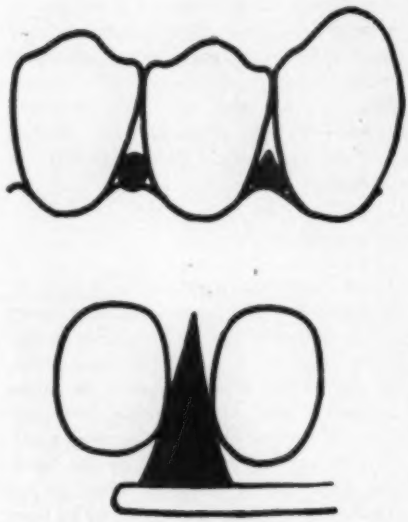

Fig. 1 • Although the interdental stimulator is useful as a massaging agent, it is useless for tooth cleansing. Above: Neither the cervical nor the contact surfaces are reached by the cone or pyramid. Below: The tapering shape of the stimulators allows only a linear contact, thus leaving the proximal surface practically unclean

The stimulator massages more effectively in certain parts than the brush, especially in the interdental areas. For instance, in the interproximal spaces in the bicuspid-molar region, because of the greater buccolingual depth, the massaging effectiveness of toothbrush bristle-ends is necessarily reduced.

The interdental stimulator helps to prevent the recurrence of periodontal disease by maintaining maximum circulation and producing surface keratinization. In cases of necrotizing gingivitis, however, one must guard against the premature use of the stimulator or the brush if the mucous membrane has not healed sufficiently to withstand friction. The dentist must warn the patient against forceful or prolonged use of stimulators since it may result in unnecessary interproximal gingival recession and root exposure and may even create a bizarre gingival contour, with a concavity instead of a convexity interproximally, giving the interdental space a keyhole-like appearance.

As a cleansing implement, the interdental stimulator has extremely limited usefulness. This fact must be carefully explained to the patient because he may misunderstand its main function and feel that he is cleaning his teeth with it. The stimulator cannot possibly replace the toothbrush or floss as a cleansing agent. Its only use is for the dislodgment of large particles of food from molar areas where the patient finds it difficult or impossible to clean with dental floss because of a fixed bridge attachment or because of a lack of manual dexterity. Even there, fine adhering food cannot be removed by a stimulator.

The ineffectiveness of the stimulators for caries prevention is easily explained (Fig. 1). To remove a thin layer of adhering, decomposing food from the tooth surface, a cleansing implement must be capable of effectively reaching and

cleansing the entire proximal surface from the buccal to the lingual side and from the contact point to the depth of the crest of the septal gingiva. This cannot be expected of the stimulator because of its conical or pyramidal shape and because of the comparative rigidity of its material. In addition, the large smooth surface of the stimulator does not engage the small food particles as does the tuft of bristles. The cone-shaped point is perhaps least potent as a tooth cleanser. It permits only a narrow, tangential contact with each of the adjoining teeth at the point where the cone is prevented by its increasing diameter from entering the interdental space further. Furthermore, the round shape of the cone does not allow contact with the areas most vulnerable to caries—the cervix and the contact point.

The pyramid-shaped stimulator, though designed to fit snugly into the triangular interdental space, is only slightly more valuable than the cone as a cleansing implement. While its flat sides afford a little more contact and so may be slightly more effective than the cone, they still do not clean the vulnerable areas as effectively as floss. Furthermore, very few individuals are able to place the triangular points in the correct position between the posterior teeth where they cannot see the space but must rely on touch alone. These deficiencies in cleaning ability do not detract from the effectiveness of the stimulator in massaging the posterior interdental papilla since the compression of the papilla necessary for massage does not require the tip to fit the outline of the interproximal space closely.

TOOTHPICKS

The toothpick, probably the earliest oral hygiene implement in history but for many years completely proscribed by etiquette, is returning to general use. Dentists recommend it for interdental stimulation or for the prompt removal of tightly impacted food. Although dental floss is usually more effective for the removal of such food, the toothpick often is more readily available.

Fig. 2 • Water syringes which are useful in keeping interproximal pockets thoroughly cleansed

WATER SYRINGE

With the deep interproximal pockets formed by chronic dormant necrotizing gingivitis, an additional oral hygiene problem arises. These pockets are differentiated from the proximal ones of periodontitis in that the former are bounded mesially and distally by the root surfaces of the adjoining teeth with no intervening gingival partition; also, the bottom of the pocket is tender when touched lightly by a blunt probe and bleeds more easily than the pocket in periodontitis. Because they are open craters, these pockets become veritable garbage reservoirs and their labial and lingual walls obstruct most efforts to clean them by the usual means. On the other hand, rigid oral hygiene is doubly important to prevent hypersensitiveness and decay of the root surfaces and to permit healing

of the diseased gingiva. Some periodontists solve the problem by resecting the labial or lingual gingival flap, thus facilitating cleansing action, but this may result in permanent extensive root exposure.

However, another answer to the problem which is often more desirable is to retain the labial and lingual gingival flaps and to force a powerful jet of water from an easily manipulated bulb syringe (Fig. 2) into each pocket individually as soon after meals as possible. The results frequently are gratifying. The pockets may heal and fill in from the bottom. When posterior teeth with exposed bifurcations or trifurcations are retained for long periods despite their usually negative prognosis, the syringe can keep them surprisingly clean.

CONTROVERSY REGARDING GINGIVAL MASSAGE

In recent years the value of gingival massage has been discounted by some periodontists. It may be that to a great extent they have been motivated by a desire to debunk the unwarranted claims of some dentifrice manufacturers who use half-truths to link their products with the beneficial effects of massage. While proper toothbrushing, with or without a dentifrice, can maintain gingival health in most persons, the manufacturer implies in his cleverly worded advertisements that the normal condition of individuals using his dentifrice is maintained, not by the massaging and cleansing action of the brush, but rather by some exceptional quality of his dentifrice when used with the brush. Such statements would not be harmful if the readers did not depend more on the empty promise of the dentifrice than on the effective use of the brush. The false sense of security induced in the lay public can really be hazardous when the advertisements recommend massage for the prevention or alleviation of "bleeding," "inflamed" or "swollen gums," which can be symptoms of a serious systemic disease that requires early attention.

One sympathizes with any action by organized dentistry[1] or by any of its members[2] to take the props out from under such misleading advertisements but not when, at the same time, it discredits a valuable preventive and therapeutic measure such as gingival massage. The following is a brief consideration of what massage is, its physiologic effects on tissues generally and the purposes of its local application for the prevention and treatment of periodontal disease.

Definitions • Massage (French, to knead) is defined in Dorland's *Medical Dictionary* as "The systematic therapeutical friction, stroking, and kneading of the body." *Webster's Collegiate Dictionary* defines it as "A method of treating the body for remedial or hygienic purposes, consisting in rubbing, stroking, kneading, tapping, etc., with the hand or an instrument."

Physiology • In discussing the physiology of massage, Coulter[4] states: "Massage produces mechanical effects on the circulation by assisting venous and lymphatic return." Krusen[5] makes the observation that "Actual mechanical assistance to the flow of blood or lymph requires only light centripetal stroking. The lightest touch will empty the superficial veins and lymph vessels of an extremity, and pressure in the deeper vein rarely exceeds that of 5 to 10 mm. of mercury."

Pemberton[6] describes studies by Drs. E. R. Clark and E. A. Swenson of the

4. Coulter, J. S. Massage. In Cyclopedia of medicine, surgery and specialties, v. 9. Piersol, G. M., and Bortz, E. L., editors. Philadelphia, F. A. Davis Co., 1945, p. 647.

5. Krusen, Frank H. Physical medicine. Philadelphia, W. B. Saunders Co., 1941, p. 526.

6. Pemberton, R. Physiology of massage. In Handbook of physical therapy, ed. 3. Chicago, American Medical Association, 1939, p. 83.

capillary circulation in the ear of a rabbit in which they used a permanent window for observing the results of light massage. They said that "Following massage there is an increased rate of blood flow and a change in the vessel wall which is evidenced by the 'sticking' and emigration of leukocytes. Massage is thus accompanied by an increased interchange of substances between blood stream and tissue cells, with an altered and presumably improved tissue metabolism."

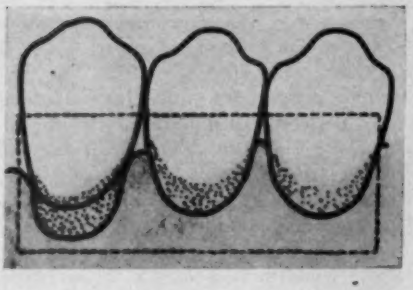

Fig. 3 • Dotted line indicates area that is automatically included in effective toothbrushing. To cleanse the cervical part of the clinical crown, the labial and septal gingivae must necessarily be included. Thus toothbrushing is in effect synonymous with gingival massage

MASSAGE USED IN THE TREATMENT OF PERIODONTAL DISEASE

Because the gingiva, like the rabbit's ear, is a comparatively thin tissue with ample blood and lymph circulation, similar beneficial reactions may be expected from gentle massage. That it is beneficial may be concluded from several clinical observations, particularly of its apparent effectiveness in the prevention and treatment of chronic types of periodontal disease and in the prevention of recurrence of necrotizing gingivitis.

In chronic marginal gingivitis caused essentially by continuous retention of decomposing food, with its associated bacterial growth, it is the cleansing action of the brush that is mainly responsible for the prevention and treatment of the condition. The gingivitis occurs only at points that are continuously unclean and brushing alone is quite sufficient to cause complete disappearance of the gingival lesions within a few days. Its continued routine use will prevent a recurrence even in the absence of sufficient masticatory function.

In periodontitis and chronic gingival hyperplasia, according to my clinical observation, it is the massaging more than the cleansing action of the brush (Fig. 3) that helps prevent the symptoms from developing and helps in their treatment when they do occur. The effect of the stimulating action of gingival massage in the prevention of periodontitis is demonstrated by the fact that pockets are less likely to develop at points where the gingiva is habitually reached by the brush. There are characteristic patterns in the localization of pockets in individuals predisposed to periodontitis (Fig. 4).

In those patients who seldom or never use a brush, or who do not touch the gingivae in their brushing, pockets are generally distributed in the arch without any special pattern.

In those patients who limit the brushing to the labiobuccal side and include the gingiva, but entirely omit brushing on the lingual side (Fig. 5), there are generally no pockets on the labiobuccal sides and pocket formation is limited only to the lingual sides with possible interproximal extensions toward the labial. A similar pattern may be present even if the brush is used on the lingual side of the arch if it does not reach the gingival margin. In this pattern, if the brush does not reach the most posterior teeth on the buccal sides, suppurating pockets will be found there.

In right-handed patients who brush the labial sides well, but habitually omit the upper and lower right anterior teeth

because it is uncomfortable to manipulate the brush there, pockets may appear in those areas only.

The above cause and effect relationship between brushing and the prevention of periodontitis can be corroborated in everyday practice. It is not so easy to prove that it is predominantly the massaging action of the brushing that controls the pocket formation. However, two important facts must be remembered. First, that massage with an interdental stimulator, which is an extremely poor cleansing implement, can produce in regions inaccessible to the brush the excellent results attributable to brushing in more accessible regions. This may be explained by the physiologic reaction of tissues to massage which the reports quoted earlier indicate induces a biologic status resistant to tissue deterioration and infection. In the second place, in cases of gingival hyperplasia the toothbrush usually does not reach effectively into the deep pseudo crevice between the enlarged gingiva and the tooth. Those areas, highly susceptible to irritation, infection and periodontal destruction, are therefore not cleaned and retain food debris. The success of brushing in the treatment of these cases of gingival hyperplasia must then be attributed to the massaging action rather than cleansing.

Where patients have a generalized tendency to gingival hyperplasia, the enlargement occurs mainly at points missed habitually in the brushing routine. A striking instance is that of a 16 year old male patient (Fig. 6) treated by neurologists with diphenylhydantoin sodium for about two years. His gingivae became enlarged soon after the therapy started. The enlargement was limited to the upper and lower incisor and cuspid

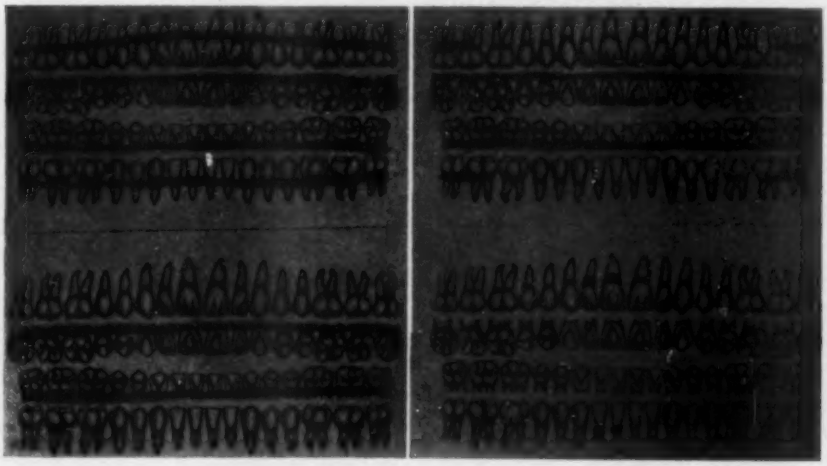

Fig. 4 • Typical general patterns of pocket localization in patients predisposed to purulent periodontitis. Left, above: Periodontal chart of patients who do not use a brush or whose brush does not reach the gingivae. The pockets may be localized without any special pattern. Below: In patients who brush effectively only on the buccal side, pockets are apt to be on the lingual side only. Right, above: Localization of pockets in patients who brush only the buccal side but do not reach far enough posteriorly. There are no pockets on the buccal side except in the areas not reached by the brush. Below: In patients who brush effectively on the lingual and buccal sides but habitually miss the right anterior teeth, the pockets are apt to be located there

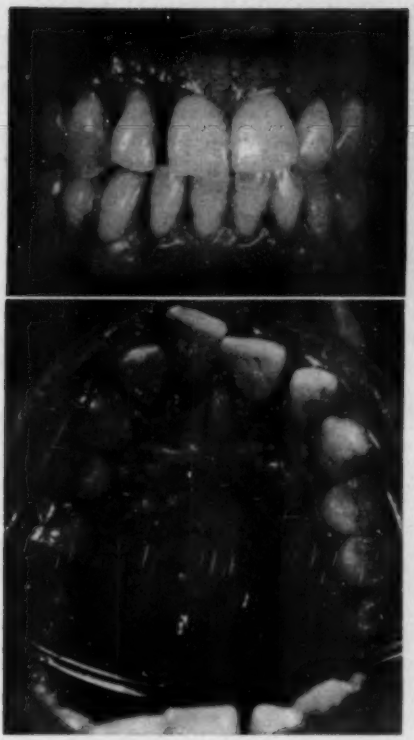

Fig. 5 • Above: Healthy gingival tissue on the labial side in patient who brushed assiduously there but who omitted the lingual side completely. Below: Showing generalized advanced purulent periodontitis on the lingual side where brushing was omitted

regions on the right side with only slight change in the rest of the mouth. When the patient demonstrated his usual brushing technic, he brushed strenuously throughout the mouth but unconsciously omitted the teeth and the gingivae in the hyperplastic region. A second performance repeated the same faulty procedure. There was no more subgingival deposit in the enlarged area than in the rest of the mouth. A small amount of subgingival curettage was performed and the patient was taught a modified Charters' method of brushing, with emphasis on the right anterior region and the gingivae soon became almost normal in spite of continuation of the diphenylhydantoin (Dilantin sodium) therapy.

Fig. 6 • Gingival hyperplasia in right anterior region, in a patient under Dilantin sodium therapy. This is the only area omitted in his otherwise strenuous toothbrushing

Stern, Eisenbud and Klatell,[7] in a report on a detailed study of 50 selected epileptic patients receiving diphenylhydantoin sodium therapy, of whom 52 per cent showed gingival reactions, make the observation that "no correlation was demonstrable in connection with sex, age, *status of oral hygiene* [italics mine], malocclusion or the therapeutic effectiveness of the drug." In other words, the hyperplasia may occur with or without an associated unhygienic state, and gingival hyperplasia may not exist even in an unhygienic mouth. Therefore, obviously, in the treatment of these cases, the cleansing action of the brush is not quite as important as the massaging.

In some types of gingival hyperplasia, the mere removal of the systemic cause will make the enlargement disappear without any local therapy or any special effort at toothbrushing. One instance is

7. Stern, L.; Eisenbud, L., and Klatell, J. Analysis of oral reactions to Dilantin-sodium. J. D. Res. 22:157 (April) 1943.

that of frank scurvy; the mere correction of the deficiency by vitamin C therapy or the elimination of any gastro-intestinal disease responsible for it, may lead to a return of the normal gingival contour. Similarly, the enlargement associated with infectious mononucleosis generally disappears when the disease has run its course. Other instances can be enumerated.

In other types of gingival hyperplasia, such as those associated with adolescence or pregnancy, local treatment consists of subgingival instrumentation for the removal of calculus (with the incidental "blood-letting") and the reduction or elimination of traumatic occlusion, food impaction and other irritating factors. Brushing instructions are given early in the treatment, particularly emphasizing the massaging of the gingivae with the toothbrush. At first the enlargement is rapidly reduced, mainly as a result of hemorrhage incidental to the instrumentation. When the hemorrhage no longer occurs in response to manipulation with the instruments, subgingival curettage is discontinued. From this time on it is necessary to rely entirely for the final reduction of the bulk on the patient's faithful observance of home care, particularly the toothbrushing.

The fact that the hyperplasia remaining after treatment diminished without any therapy other than the action of the brush, and that the improvement progresses at a rate according to the patient's cooperation, suggests that the brushing must have been an important therapeutic measure throughout the treatment. As was pointed out earlier, the fact that the emphasized interproximal embrasures and deep gingival pseudo-crevices render thorough cleansing there impossible indicates that it is essentially the massaging and not the cleansing action that is the principal therapeutic factor. The potency of the massaging action in gingival hyperplasia generally may be surmised from the fact that successful results are obtained and then sustained, in spite of the continued presence of the systemic factors such as the hormonal disturbances in adolescence, or pregnancy or the action of diphenylhydantoin sodium (Fig. 7).

ARGUMENTS AGAINST GINGIVAL MASSAGE

To support the contention that gingival massage is superfluous in the prevention or treatment of periodontal disease, and may even be harmful, one writer[3] offers

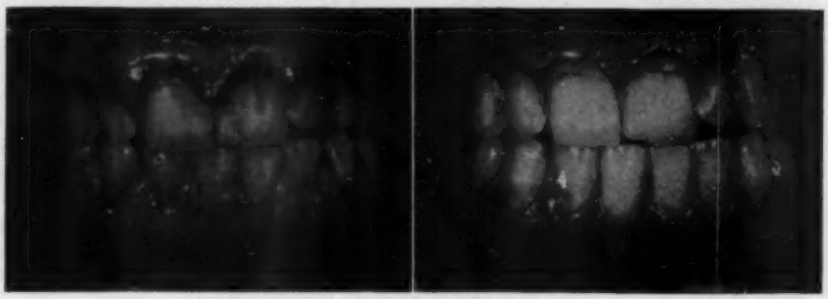

Fig. 7 • Left: Gingival hyperplasia in an epileptic patient, caused by diphenylhydantoin sodium therapy. Right: Gingivae of the same patient after conservative treatment. The gingivae remained normal under the influence of gingival massage even though the diphenylhydantoin sodium therapy, the causative factor, was not discontinued

as evidence the protection afforded the gingivae by several morphologic characteristics of the teeth, the cingula, the exaggerated convexity of the lingual surfaces of the upper teeth and the buccal surfaces of the lower, and the anatomic structures preventing food impaction. He makes the statement that "nature obviously intends the gingivae to be protected and sheltered from food traction and pressure. To violate this principle and claim therapeutic merit for it is untenable from a scientific point of view."

From a scientific point of view the above statement itself seems inaccurate. In the first place, the protective anatomic elements referred to serve mainly to deflect the vertical thrust of food in mastication away from the vulnerable gingival sulcus and possibly the margin of the free gingiva.[8] On the other hand, the labial and lingual gingivae are massaged during mastication by both the glancing pressure of the deflected food and the lateral forces moving the food back to the occlusal grinding surfaces. The great force of these actions by the tongue and cheeks was described[9] years ago in anatomic studies of the teeth and jaws and it has been confirmed by clinical observation. Anatomic structures demonstrating it are the everted buccal alveolar border found in many mandibles and the nonpathologic exposure of the lingual root of upper molars.

Fig. 8 • Mandible of Australian aboriginal showing bead-shaped bony projection at the alveolar border, evidently produced in reaction to pull of the cheek by food in the vestibule during mastication

THE EVERTED ALVEOLAR BORDER

That the buccal gingivae are normally subjected to considerable massaging action through pressure by food during mastication may be deduced from the tendency of a raised line to develop at the edge of the mandibular buccal alveolar plate (Fig. 8). It extends forward from the retromolar triangle to the first molar region and sometimes even as far forward as the first bicuspid. This anatomic structure at the site of the buccinator muscle attachment is present in mandibles of civilized man as well as of aborigines. It is developed to a greater or lesser degree and ranges in appearance from a mere raised line or bead to an actually everted border of the alveolar plate. It also occurs, but less often, on the buccal alveolar plate near the upper molars. Evidently it is produced as a reaction to strong pull on the cheek as the large bolus of food in the vestibule is forcefully wedged between the cheek on the outer side, and the teeth and gingivae on the inner, during mastication. This hypothesis is based on the well-known tendency for bone to grow such projections in response to considerable muscle pull. That the pull on the bone is accentuated mostly by the bolus of food is indicated by the lateral direction of growth of the projection which in some instances is even turned completely over, like a turned-down collar.

8. Hirschfeld, I. Mechanics of mastication in relation to the health of the periodontium. Nat. Den. Assn. J. 9:120 (Feb.) 1922.

9. Hirschfeld, I. A study of skulls in the American Museum of Natural History in relation to periodontal disease. J. D. Res. 5:241 (Dec.) 1923.

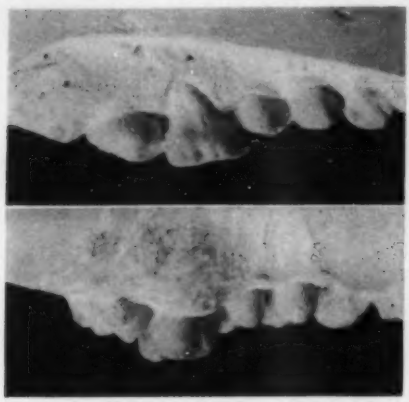

Fig. 9 • Evidence of pressure by the tongue against the lingual gingiva in mastication. Above: Nonpathologic root exposure of an upper first molar extruded through loss of the lower first molar; mastication on that side was not materially curtailed. Below: An upper first molar extruded through loss of two opposing teeth. These were not replaced and mastication was therefore permanently discontinued. Note the prominent contour of the lingual gingiva that elongated with the tooth

THE NONPATHOLOGICALLY EXPOSED LINGUAL ROOT

The lingual gingivae, too, especially in the bicuspid-molar region, are normally exposed to a considerable degree of pressure and friction through food being manipulated by the tongue in mastication. This is demonstrated by the classic picture of the nonpathologic lingual root exposure of the extruding upper first molars.

This phenomenon may be explained as follows: The periodontium tends to grow downward along with the tooth, as the tooth extrudes on account of the loss of its lower opponent. As a result, when for some reason or other mastication on that side has become habitually nil, the lingual gingiva bulges beyond the general palatal plane (Fig. 9), because of the usually pronounced incline of the underlying lingual root. However, mastication on that side is usually soon resumed, with the result that the lingual root tends to become progressively exposed through loss of its gingival covering (Fig. 9).

This gingival loss is caused by the fact that the ordinarily normal pressure by the tongue and the frictional action of the food against the lingual gingivae becomes accentuated to a traumatizing degree because of the abnormally raised contour of the gingiva. This phenomenon is analogous to the nonpathologic gingival recession over a cuspid or a buccally malposed bicuspid, excessively exposed to toothbrushing action. In each case, the ordinary degree of pressure exerted harmlessly against the gingiva over a straight segment of several teeth becomes accentuated to a traumatizing degree when concentrated on a raised (smaller) area.

KERATINIZATION OF THE GINGIVAE

The keratinization of the marginal and alveolar gingivae is a third anatomic indication that they are being constantly subjected to considerable forces in mastication. Weinmann,[10] in discussing keratinization of the oral mucosa, stated, "From a functional aspect, keratinization may be explained as the reactions of the squamous epithelium to different stimuli and irritation." Orban[11] agrees, saying that "The mucous membrane surrounding the teeth, the gingivae, is subjected to forces of functional pressure in the process of mastication. The character of these tissues shows that they are adapted to meet these stresses." He states elsewhere[12] that "Strong hornification of the gingiva may afford relative protection. Therefore, measures to increase hornifi-

10. Weinmann, J. The keratinization of the human oral mucosa. J. D. Res. 19:57 (Feb.) 1940.
11. Orban, B. Oral histology and embryology. St. Louis, C. V. Mosby Co., 1944, p. 266.
12. Orban, B. Hornification of the gums. J.A.D.A. 17:1977 (Nov.) 1930.

cation can be considered a prevention against injuries. One of the methods inducing hornification is mechanical stimulation such as massage or brushing."

One writer,[8] to illustrate that "spectacular results" are obtainable without massage, produces before and after roentgenograms and photographs of a case of periodontitis showing beautiful results and explains that "massage was not included in the treatment regimen." However, close examination of the after-treatment picture of this case shows definite evidence of daily meticulous use of the toothbrush. The fine hygienic condition at the gingival margin could not possibly have been attained without inclusion of a considerable part of the gingiva in the brushing procedure. It would seem, therefore, that this author has erred in his belief that massage was omitted. He was evidently unaware of the fact that the effective brushing by the patient one or more times daily also included stimulation of the gingivae. Actually, stimulation by the brush is the only type of massage used by most periodontists in the successful treatment of periodontitis with the occasional exception of the supplementary use of interdental stimulators when especially indicated.

He states further:[8] "The resolution of gingival or periodontal inflammation and the restoration of normal circulatory function can be obtained only by the removal of causative disease influences, the correction of structural tissue changes and the establishment of proper functions. Without these, good health cannot be induced or maintained." This statement is true in certain types of periodontal disease but does not hold good in others. As examples of the latter type, there is the gingival hyperplasia associated with pregnancy and that caused by diphenylhydantoin sodium intake. In both these conditions the causative factor obviously cannot be removed. Yet the gingival inflammation and enlargement may be improved or entirely eliminated in spite of the continued presence of the principal systemic etiologic factor. Furthermore, in both cases, the stimulating massaging action of the toothbrush plays an important role not only in the return of gingival health but also in the posttreatment maintenance of normal gingivae.

In a further effort to minimize the value of massage, the afore-mentioned writer states: "Massage is, at best, a poor substitute for good functional stimulation. The current emphasis on massage and the widespread disregard of the essential feature of establishing good function in periodontal treatment programs should be viewed with considerable concern." Overemphasis on the value of massage can be misleading but ignoring it can be equally impractical. Functional stimulation affects the entire periodontium, including the gingivae, and is the best form of stimulation, but when occlusal function is curtailed or entirely missing, gingival massage can play an important role in the direct maintenance of health in the gingivae and in the pericementum occlusal to the alveolar crest. Since this region is the point of incipiency of many periodontal diseases, the prophylactic and therapeutic action of gingival massage may be appreciated.

The same writer, describing damage which he feels may result from massage, says: "Postoperative massage following subgingival curettage may be compared logically to the massage of an infected finger from which a splinter has just been removed. It may be questioned that authoritative medical scientists would condone that practice." It may be equally questioned that authoritative dental scientists would condone such practice. As indicated earlier in the paper, the periodontist does not instruct his patient in toothbrushing or other types of gingival massage until a considerable time after the initial removal of subgingival deposits. Furthermore, he warns the patient against toothbrushing within 24 hours after each

subgingival curettage treatment. But it does not follow that massage is harmful after that waiting period.

Continuing, the same writer states: "In addition to the contraindications [of gingival massage] already noted, one must also note such periodontal diseases as desquamative gingivitis and so-called pregnancy gingivitis, in both of which hormonal disorders play causative roles." It has been pointed out earlier that desquamative gingivitis is one of the several conditions in which the use of the brush on the gingiva is generally contraindicated because of the typically fragile condition of the mucous membrane. But it is difficult to understand why the use of the toothbrush or even of an interdental stimulator is contraindicated in gingivitis caused by pregnancy. If the quoted statement is correct, periodontists have been erring seriously for many years in their reliance on massage as an important aid in reducing the gingival hyperplasia. On the contrary, the importance of toothbrushing, including its massaging effects, is especially great during pregnancy in the treatment as well as in the prevention of periodontal disease. This is so because of the great tendency for gingival hyperplasia and periodontitis to be initiated or accentuated by pregnancy.

The argument has been proffered[3] that gingival massage may possibly cause subacute bacterial endocarditis and this certainly deserves careful consideration. However, an analysis of the comparison between the remote possibility of gingival massage causing this disease, on the one hand, and the probability of ill-effects on the individual resulting from neglect of effective oral hygiene habits on the other, seems to indicate the advisability of employing any oral hygiene measures necessary to maintain good oral health. Transient bacteremia may produce subacute bacterial endocarditis in individuals with cardiac valvular lesions, particularly those with a history of rheumatic fever. Bacterial endocarditis, until the recent advent of antibiotics, almost invariably terminated fatally. It is understandable, therefore, that even though the mortality rate has been reduced to less than 20 per cent,[13] the importance of precautionary measures against its occurrence still cannot be overemphasized, particularly in the planning of surgical procedures.

Despite the variations in the reports of recent experiments, there seems to be no doubt that a transient bacteremia can follow gingival or periodontal manipulations. There are more reports on the supposed association between extractions and subacute bacterial endocarditis, and on statistical data on the causation of transient bacteremias by tooth extraction than by any other form of manipulations. It has been found experimentally that bacteremias follow soon after chewing, gingival massage or subgingival scaling. It has also been observed that the presence of subgingival or periapical infection increases the possibility of producing bacteremia, and that manipulation of acutely infected tissue predisposes to bacteremia more readily than does chronically infected tissue. In addition it has been reported that extensive trauma leads to bacteremia more readily than do milder manipulations.

Robinson[14] and co-workers have used scalers subgingivally for 10 minutes on the lower anterior teeth of 72 patients with periodontal disease, of whom only 5 showed a bacteremia. Considering the great number of strokes that must have been made underneath the gum over the period of 10 minutes, and the probable opening into the blood stream with the sharp instruments, the number of cases that yielded the bacteremia may be considered small. The use of the comparatively soft bristles of the toothbrush or

13. Harrison, Tinsley R. Progress in cardio-vascular disease. In Year book of medicine. Chicago, Year Book Publishers, 1950.

14. Robinson, L., and others. Bacteremias of dental origin. II. A study of the factors influencing occurrence and detection. Oral Surg., Oral Med. & Oral Path. 3:923 (July) 1950.

even an interdental stimulator point at the vestibule side of the gingival flap, especially after any gross subgingival scales had been removed, surely cannot be considered a menace to the patient's health.

Seifert[15] has concluded from his data that manipulation of acutely infected tissues more often results in bacteremia than those chronically infected. Murray and Moosnick[16] report that they had "336 patients with various degrees of dental caries and pyorrhea" chew a 1 inch cube of high melting point paraffin for a half hour. The blood cultures taken immediately thereafter indicated bacteremia in 55 per cent of the patients. Round[17] had 10 patients "suffering from all types of oral sepsis"chew mint lumps for 10 minutes, 5 of whom "exhibited degrees of alveolar resorption"; 2 of the patients yielded positive bacteremia findings. Among his concluding statements was "only those cases showing pyorrheal teeth showed bacteremia after mastication."

Since, according to these reports, mastication with teeth that have periodontal disease is more likely to produce a bacteremia than teeth with a healthy periodontium, any means, including gingival massage, for prevention of periodontal disease would seem to be desirable for patients predisposed to subacute bacterial endocarditis. Furthermore, considering the unavoidable amount of time and forceful action required in mastication, and its potentialities for the production of several transient bacteremias daily in every periodontal patient, it is logical to assume that the comparatively mild force and brief duration of gingival massage with the brush or an interdental stimulator may be considered negligible.

In his investigation of bacteremia following irritation of foci of infection, in referring to his gingival experiments, Richards[18] states "only those cases were selected that showed definite inflammation either in the gums or at the apex of the tooth, by roentgen examination. The gums were massaged and the tooth was rocked as much as possible for 10 minutes." Of the 17 experimental patients, 3 showed positive blood cultures after the manipulations. However, upon inquiry, Richards[19] furnished the following information which indicates that his experiments actually did not prove that gingival massage caused the bacteremia. (1) All the teeth selected for the experiment showed definite roentgenographic evidence of periapical disease. (2) The teeth (which were "not very loose") were rocked very forcefully with a firm grip on the tooth with the fingers. (3) Every tooth was both rocked and massaged but no tooth was only massaged or only rocked.

It is evident that since every tooth was both rocked and its gum massaged, it cannot be said with any definiteness that the massaging had anything to do with the production of the transient bacteremia. This fact and the fact that it has apparently never been demonstrated or proved that gingival massage was responsible for any given case of subacute bacterial endocarditis, make it questionable whether, considering the many advantages that may accrue from massage, it would seem reasonable for the dentist to discourage its use.

SUMMARY

The role of the toothbrush, the interdental stimulator, and other oral hygiene implements in the prevention and treatment of periodontal disease has been discussed.

The importance of massage in prevent-

15. Seifert, E. Ueber Bacterienbefunde im Blut nach Operationen. Arch. f. klin. Chir. 138:565, 1925.

16. Murray, M., and Moosnick, E. Incidence of bacteremia in patients with dental disease. J. Lab. & Clin. Med. 26:801 (Feb.) 1941.

17. Round, H., and others. Further investigations on bacteriological infections of the mouth. Proc. Roy. Soc. Med. 29:1552 (Oct.) 1936.

18. Richards, J. H. Bacteremia following irritation of foci of infection. J.A.M.A. 99:1496 (Oct. 29) 1932.

19. Richards, J. H. Correspondence, October 1950.

ing and treating various types of periodontal disease has been demonstrated and several arguments against the use of massage have been evaluated.

CONCLUSIONS

1. Some of the tooth's morphologic elements protect the gingival sulcus from having food forced into it in mastication, but the gingivae generally are massaged with considerable force by food through the action of the tongue, cheeks and the occlusal forces.

2. When masticatory function is subnormal in quantity or quality, massage with a brush or an interdental stimulator can supplement the curtailed gingival stimulation effectively.

3. Gingival massage aids in the prevention and treatment of certain types of periodontal disease although it is contraindicated in others.

4. Effective toothbrushing massages the gingivae even without any special effort at stimulation.

5. The interdental stimulator can reach certain interproximal regions inaccessible with the brush and it is a valuable aid in treating various forms of periodontal disease, especially gingival hyperplasia and periodontitis. It also aids in posttreatment of ulcerative gingivitis. Since the stimulator, because of its shape and texture, is practically useless as a cleansing implement, its value lies only in its ability to massage the gingivae.

6. Dental floss and the water syringe are useful in cleansing adherent food from the teeth but they cannot be considered massaging implements.

7. Since in a fairly large group of epileptic patients under diphenylhydantoin therapy there was no correlation demonstrable between the status of oral hygiene and the incidence of gingivitis, and since in this condition as well as in other types of gingival hyperplasia in which brushing plays a major role in reducing the bulk of the tissue, the brush bristles cannot effectively clean the deep pseudo-crevices, it is evidently the massaging action rather than the cleansing that is effective in the treatment.

8. The remote theoretical possibility that gingival massage may cause transient bacteremias that may lead to subacute bacterial endocarditis in susceptible individuals is not great enough to cause dentists to discard gingival massage as an important preventive or therapeutic measure. The periodontal patient is constantly being subjected to transient bacteremias during mastication and there is no evidence that gingival massage can cause subacute bacterial endocarditis any more than mastication.

9. Although the precise manner in which gingival massage produces its beneficial effects is not known, these benefits can be demonstrated. Massage, therefore, deserves a place in periodontal treatment on an empirical basis. Continued study of the physiologic, biochemical and histologic basis for the effects of massage is certainly indicated.

730 Fifth Avenue

Antiseptics • "The antiseptic is always injurious in its own action; a necessary evil, incurred to attain a greater good. To suppose that it is useful by its own operation in some specific manner unknown to us, is an entire mistake." *Sir Joseph Lister, British Medical Journal, p. 225-233, July-December 1871.*

LON W. MORREY, D.D.S., EDITOR

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THE Journal OF THE AMERICAN DENTAL ASSOCIATION

Editorial

Privilege of constituent society membership should be retained by dental reservists

The inch-high headlines that top the daily papers are constant reminders that the United States has launched on a great rearmament effort that promises to alter the order of life in this country. Forty-one thousand men are to be drafted in October, universal military training is slated soon for all young male adults, and defense spending, now rated at 35 billion dollars annually, is to be increased to 65 billion by June 1952 when 20 per cent of the total national output will be devoted to military purposes. More than 3,200 Reserve dental officers have returned to the Armed Forces since the beginning of the Korean conflict and 10,000 more will be needed when the military forces reach a contemplated strength of 5,000,000. This number may be doubled or quadrupled by 1960 if the present plan of rotating personnel every 24 months is continued.

This, then, is the pattern of life planned for the immediate future. It is a new and stringent pattern hitherto unknown in this country, a pattern to which everyone, including every dentist and particularly every dentist of military age and fitness, must become adjusted. To some, entry into the Armed Forces may seem like a major ordeal necessitating an upheaval in family life and a severing of community ties. Actually it is not. Twenty-four months in military service is but a short interlude in a long lifetime of professional activity. The well adjusted individual, at the conclusion of his period of service, returns to his home, picks up the threads of his former life and becomes again an active member of his community.

It is important, then, that the dentist sever as few of his community and professional ties as possible while in the military service. It is particularly important that a member of the profession maintain membership in his local and state dental society as well as in the Association.

Under the Bylaws of the Association, a Federal dental officer may become a member of the Association without being a member of a state and local dental society. This provision was made in order to extend the privileges of membership to dentists who choose Federal service as a life career and, therefore, have no state and local commitments. Although civilian dentists serving temporarily as military officers may come under this ruling, they owe it to themselves and their profession to maintain their state and local dental society ties.

During World Wars I and II, some state dental societies remitted the state dues of members in service. Some states still follow this custom. Others, less affluent, are unable to extend their members this courtesy. Now that the pattern of American life has changed from one of peacetime pursuit to one of military preparedness, it is problematic whether the courtesy will be continued. However, that is a matter for the state societies to decide. The fact is clear that during the foreseeable future this country will function on a military basis. Dentists will be drawn from private practice to serve temporarily in the Armed Forces. During the period of military service the dentist should retain his civic and professional connections as he will need them doubly upon his return to civic life. The strength of the dental profession, like the strength of America itself, lies deep in the grass roots of our countless communities. These roots should be nourished, not severed.

Endodontics: confusion worse confounded

Fédération Dentaire Internationale was somewhat exercised at its Brussels meeting[1] last June over the failure of dentists throughout the world to understand fully and use correctly the terms of their profession. To remedy the situation, it was recommended that an elementary course in the classic languages be required of all predental students as a means of supplying a present defect in their education.

No doubt such a measure would result in some benefit, but the solution of the problem is not as simple as that. A knowledge of Greek and Latin roots, prefixes, and suffixes would help, but it would not insure an adequate understanding of technical terms. The precise descriptive power of any word is greatly limited; at best it can only suggest the intended meaning while avoiding extraneous implications. Many of the names of anatomical structures of the head—such as *sphenoid* (wedge-shaped), *ethmoid* (sieve-like), and *vomer* (plowshare)—although containing a bit of analogy, are about as descriptive as the names of the heavenly constellations, and would hardly aid the student in identifying or defining the bones so designated. *Ranula* (little frog) in no way suggests a retention cyst under the tongue; and *prophylaxis* (a guarding against) is far from being specific enough to designate the dental meaning *scaling the teeth.* These are extreme examples, but it is universally true that the full and exact meaning of a word is given to it by its users and not by its etymology. For this reason agreement by the profession on its nomenclature is most essential.

There is a current case in hand, of international significance. In America within recent years dentists who limit their practice to treatment of the pulp and root canals have assumed the name *endodontists,* and have christened their specialty *endodontia, endodontics,* or *endodontology.* The implications of the term are clear enough—*endo-,* within; *odont-,* tooth; *endodontics,* the practice that deals with the treatment of the inner part of the tooth. This terminology has rapidly gained a foothold in this country.

There is now an American Association of Endodontists and the latest textbooks in the field carry the word in some form in their titles.

While these developments have been going on in America, European dentists have likewise found use for the same combination of prefix and root, *endodont-*. Abroad, however, the term is coming to mean different things to different dentists—all the way from usage identical with the American, through slightly divergent meanings, to concepts quite removed from what seemed so obvious a use to the specialist in pulp treatment in this country.

A Belgian writer[2] divides the whole tooth into an endodont and a paradont. The latter includes the cementum, the periodontal membrane, the alveolar bone, and the gingiva. The endodont includes enamel, dentin, and pulp. The diseases of the endodont, consequently, comprise hypoplasias, abrasions, erosions, caries, pulp pathoses, odontomes, adamantinomas. A Swiss author[3] who assigns the same tissues to the endodont adds that it is "an embryogenic and trophic concept."

A distinguished Parisian dentist,[4] viewing the matter histologically and embryologically, defines the endodont as "the aggregate of the pulp cavities of the crown and root and their dentinal adjuncts." Another Frenchman[4] limits the meaning to the natural cavities of the tooth exclusive of their content, while still others[4] identify it with the normal or pathological content of the cavities, or combine these views comprising the natural cavities with their contents. In America, the term *endodontium* has been only occasionally employed, but if it means anything to the endodontist of this country, it certainly signifies the pulp with, possibly, the chamber and root canals in which it is confined.

This example indicates the inadequacy of a word to define itself and demonstrates the limited benefit which etymological study would achieve in clarifying the use of dental terms. Furthermore, in view of the international character of science that has always existed and the particular emphasis today on a world outlook in modern thought, the confusion of usage just now developing with regard to this new coinage, *endodont*, accentuates the need of conference and agreement of the entire profession in the determination of its nomenclature.

1. A digest of the minutes of the annual meeting of the Fédération Dentaire Internationale, Brussels, June, 1951.
2. Van Kerschaever, H. L'alvéolyse précoce. J. Dentaire Belge 42:193 (May-June) 1951.
3. Jaccard, R. Dictionnaires médicaux. Médecine et Hygiène 9:77 (Feb. 15) 1951.
4. Bernard, P. D. Note sur la définition de l'endodonte. L'Odontologie 72:11 (Jan.) 1951. Solas, Held, Bernard, and Housset are cited in this article.

National Congress of Parents and Teachers condemns sale of confections in schools

Dentistry's efforts during the past half century to open the eyes of the public to the nutritional defects of a high carbohydrate diet gradually is bringing results. Public opinion slowly is swinging to the side of the profession. The National Congress of Parents and Teachers is the first of the great national civic organizations to recognize the dangers inherent in America's weakness for sweetmeats. On August 2 the executive committee of that Congress recorded its disapproval of the sale of carbonated beverages, candy and other confections in educational institutions because such sale may interfere with effective nutrition education. This statement,

issued by the country's leading organization devoted to child guidance and welfare, lends the support of millions of American mothers to the forces that are endeavoring to improve the nutrition of children.

Repledging the National Congress of Parents and Teachers to the continuing task of financially aiding schools so that educational administrators will have no need to depend on the sale of such commodities for auxiliary funds, the committee stated:

> . . . The sale of carbonated beverages, candy, and other confections in schools may interfere with effective nutrition education. Many children spend lunch money for these less nutritious foods and are at the same time deprived of a valuable learning experience. . . .
>
> We recognize that the sale of these items in schools is an administrative problem and that the responsibility of the parent-teacher organization is interpreting to parents the dangers involved in substituting these items for milk and other more nutritious foods in the child's diet, so that parents will give administrators the backing needed to remedy this situation.
>
> We also rededicate ourselves in this time of national emergency to the continuing task of providing adequate public support for schools, in order that administrators may not feel the pressure for school funds great enough to demand the sale of such items, the profits from which supply auxiliary funds needed in many schools for enrichment materials. . . .

This action is in accord with a resolution adopted last fall by the Council on Dental Health of the Association which stated that the sale of candy, soft drinks and other confections should be discouraged.

The Council on Foods and Nutrition of the American Medical Association has taken a similar stand with respect to the sale of carbonated beverages in schools. More than a year ago that Council[1] stated:

> One of the valuable functions of a school lunch program is to provide training in sound food habits. . . . The availability of carbonated beverages on school premises may induce a child to spend lunch money for these and allow him to develop poor dietary habits. . . . Furthermore, when given a choice between carbonated beverages and milk to accompany a meal, a child may frequently choose the less nutritious beverage. In view of these facts, the Council believes that carbonated beverages should not be sold on school premises.

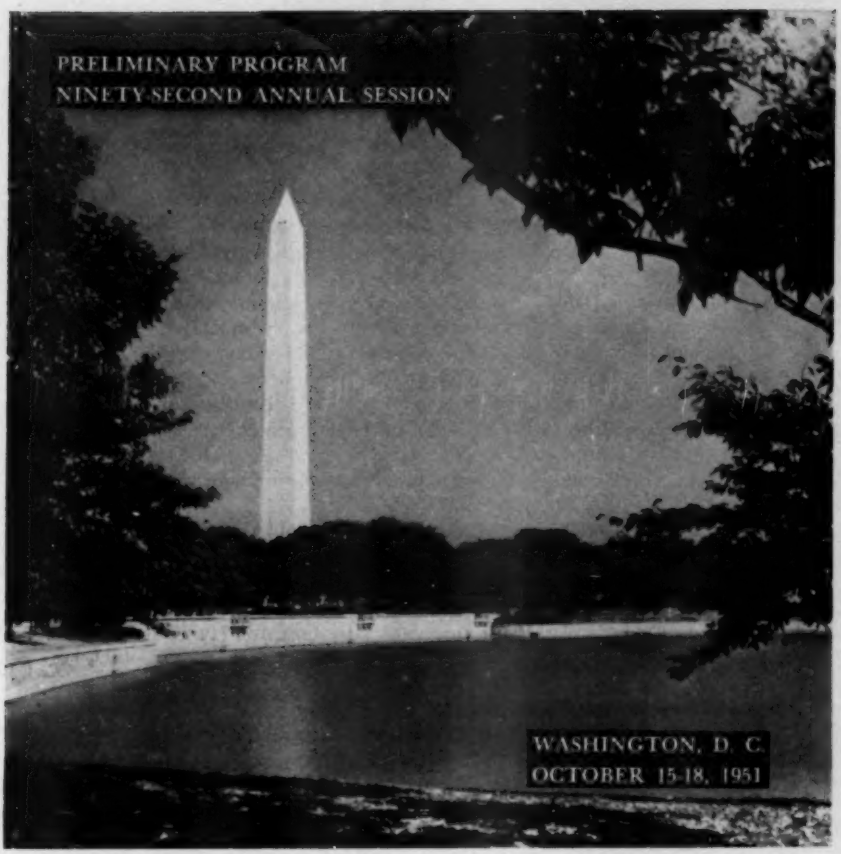
From the standpoint of dental health the recommendation of the National Congress of Parents and Teachers, like the earlier recommendation of the American Medical Association, could have been strengthened by a statement regarding the cariogenic effect of a high sugar diet. However, despite this omission, the recommendation, if carried out by all local parent-teacher associations, is bound to benefit dentally many American children.

Some school authorities excuse the sale of confections and sweetened soft drinks in school on the basis that if they are not made obtainable there, children will buy them elsewhere. They further rationalize that profits from the canteen and dispensers supply auxiliary funds for worthy purposes. Ironically, some school administrators use profits from the sale of confections to finance the control of caries caused by their overconsumption.

It is not to be expected that the recommendations of the National Congress of Parents and Teachers will change the nation's nutritional habits immediately or alter the attitude of all financially harassed school administrators. It can be expected, however, that local parent-teacher groups, once they have recognized the soundness of the recommendation, will insist that other methods of raising auxiliary school funds be initiated—methods that will not jeopardize the health of their children.

The National Congress of Parents and Teachers is to be congratulated on its forthright stand. The dental profession offers its full cooperation.

1. Report of Council on Foods and Nutrition. J.A.M.A. 143:24 (May 6) 1950.



COUNCIL ON SCIENTIFIC SESSION

William A. Garrett, chairman
R. W. Frost
Wilbur D. Johnston
Robert G. Kesel
Charles Patton

OFFICIAL CALL

To the Members of the American Dental Association:

You are hereby notified that the Ninety-second Annual Session of the American Dental Association will be held in Washington, D. C., October 15 to 18, 1951. The scientific session will be held in the National Guard Armory.

The House of Delegates will convene for the annual business session of the American Dental Association at 9:30 A.M., Monday, October 15; the second meeting will be held at 1:30 P.M., Monday, October 15; the third meeting at 1:30 P.M., Wednesday, October 17, and the fourth meeting at 1:30 P.M., Thursday, October 18. All meetings of the House of Delegates will be in the Presidential Room, Hotel Statler. The Committee on Credentials will register delegates and alternates beginning at 10:00 A.M. on Sunday, October 14, on the second floor near the Congressional Room of the Hotel Statler.

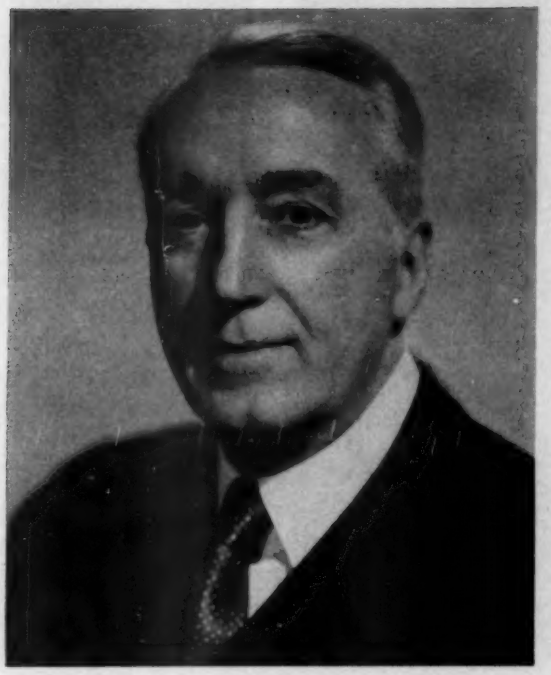
The annual State Officers Conference will be held in the South American Room, Hotel Statler, 9:00 A.M. to 5:00 P.M., Sunday, October 14.

General registration will be held at the National Guard Armory. Registration booths will be open from 10:00 A.M. to 5:00 P.M., Sunday, October 14; from 8:00 A.M. to 5:00 P.M. on Monday, Tuesday and Wednesday, October 15, 16 and 17, and from 9:00 A.M. to 5:00 P.M., Thursday, October 18.

The General Meeting will be held at 8:00 P.M., Tuesday, October 16, in the Presidential Room, Hotel Statler.

At least sixty days prior to the first day of the annual session, the constituent societies must file with the secretary of the Association a list of the names and addresses of delegates and alternates.

Harold W. Oppice, President
Harold Hillenbrand, Secretary



Harold W. Oppice
President 1950-51

Dr. Harold W. Oppice, president of the American Dental Association, has long been a leader in dental affairs, both local and national. A veteran of World War I, he was graduated from the Chicago College of Dental Surgery, dental school of Loyola University, in 1920, where he now is professor of crown and fixed bridge prosthesis. Following graduation he established a practice in Marshalltown, Iowa, and in 1924 moved to Chicago where he has resided continuously since.

During his 31 years in private practice, Dr. Oppice has also served as a teacher, editor, lecturer, dental society executive and civic leader. He has served dentistry as president of the North Side Branch of the Chicago Dental Society; treasurer, secretary and president of the Chicago Dental Society; member of the executive council of the Illinois Dental Society and editor of the Illinois Dental Journal. He long has been active in the American Dental Association. He formerly was a member of the Association's Committee on Economics and was chairman of the National Health Program Committee. He has repeatedly served as a member of the Association's House of Delegates and is a consultant to both the Army and Navy Dental Corps. He first was elected as trustee of the Association from the Eighth District in 1944 and was reelected in 1947.

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AMERICAN DENTAL ASSOCIATION
NINETY-SECOND ANNUAL SESSION
WASHINGTON, D. C., OCTOBER 15-18, 1951

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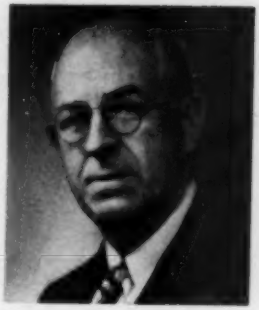
NINETY-SECOND ANNUAL SESSION
WASHINGTON, D. C., OCTOBER 15-18, 1951

R. Ingraham
Operative Dentistry



J. R. Cameron
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M. H. Burton
Clinics

C. L. Sebelius
Dental Public Health

B. W. Oesterling
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Partial Denture Prosthesis

G. W. Teuscher
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L. R. Main
Roentgenology

J. M. Wisan
Scientific Exhibits

Essay Program

Section on Dental Public Health

Officers • *Carl L. Sebelius, chairman*
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Tuesday afternoon, October 16

(Combined with Section on Pedodontics and Oral Hygiene)

INFLUENCE OF A PUBLIC HEALTH DENTAL PROGRAM ON THE PRACTICE OF DENTISTRY
Harry Strusser, New York

THE ASKOV DENTAL DEMONSTRATION
William A. Jordan, Minneapolis

Wednesday forenoon, October 17

(Combined with Section on Practice Management)

DENTAL POSTPAYMENT PLANS: THE PUBLIC HEALTH VIEWPOINT
Ralph H. Campbell, Detroit

DENTAL POSTPAYMENT PLANS: THE GENERAL PRACTITIONER'S VIEWPOINT
Roy W. Fonda, Detroit
Discussion: Bissell B. Palmer, New York

EFFECTIVE UTILIZATION OF DENTAL ASSISTANTS
George E. Waterman, Richmond, Ind.
Discussion: Roy O. Elam, Jr., Nashville, Tenn.

Wednesday afternoon, October 17

SYMPOSIUM: DENTISTS' RESPONSIBILITY IN THE FLUORIDATION OF MUNICIPAL WATERS

STUDY OF MOTTLED ENAMEL
Frederick S. McKay, Colorado Springs, Colo.

THE CHEMIST LOOKS AT FLUORIDATION
A. P. Black, Ph.D., Gainesville, Fla.

A PRACTICING DENTIST'S VIEWPOINT
Milton E. Nicholson, Pittsburgh

A PUBLIC HEALTH DENTIST'S VIEWPOINT
Frank A. Bull, Madison, Wis.

SUMMARIZATION
Allen O. Gruebbel, Chicago

Thursday forenoon, October 18

(Combined with Section on Orthodontics)

SYMPOSIUM: THE ORTHODONTIST LOOKS AT PUBLIC HEALTH

ORTHODONTIC NEEDS OF CHILDREN AND THE PROBLEM INVOLVED IN SUPPLYING SERVICE
Walter T. McFall, Asheville, N. C.
Discussion: John T. Fulton, Washington, D. C.

CLASSIFICATIONS AND TECHNICS WHICH MAKE IT POSSIBLE TO SUPPLY MORE ORTHODONTIC SERVICE
George R. Moore, Ann Arbor, Mich.
Discussion: Herbert I. Margolis, Boston

Section on Full Denture Prosthesis

Officers • B. W. Oesterling, chairman
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Tuesday afternoon, October 16

GAGGING REFLEX IN RELATION TO PROSTHODONTICS
Othmar Solnitzky, M.D., Washington, D. C.

PRACTICAL CASES SHOWING THE EFFECT OF NUTRITION ON SOFT TISSUES SUPPORTING THE DENTURE
Clarence H. Blanchard, Los Angeles

Wednesday forenoon, October 17

(Combined with Section on Research)

SYMPOSIUM: SELF-CURING DENTURE RESINS
Moderator: Luzerne G. Jordan, Washington, D. C.

PHYSICAL PROPERTIES
Harold J. Caul, Ch.E., Washington, D. C.
Discussion: Stanley D. Tylman, Chicago

CLINICAL TRIALS
Frank E. Jeffries, Corona, Calif.
Discussion: Robert J. Nelsen, Washington, D. C.

SYMPOSIUM: PLASTIC TEETH—THEIR ADVANTAGES, DISADVANTAGES AND LIMITATIONS

PHYSICAL PROPERTIES
W. T. Sweeney, A.B., Washington, D. C.
Discussion: Floyd A. Peyton, D.Sc., Ann Arbor, Mich.

CLINICAL TRIALS
Lynn C. Dirksen, Washington, D. C.
Discussion: Walter J. Pryor, Cleveland

Wednesday afternoon, October 17

(Combined with Section on Oral Surgery)

SYMPOSIUM: PREPARING AND MAINTAINING ORAL TISSUES FOR COMPLETE DENTURES

SURGICAL PREPARATION OF THE MOUTH FOR PROSTHESIS
Thomas M. Meloy, Jr., Philadelphia

BIOLOGIC DEMANDS OF COMPLETE DENTURES
Muller M. DeVan, Philadelphia

NUTRITIONAL ASPECTS OF MAINTAINING COMPLETE DENTURES
Russell W. Tench, York, Pa.

Open Discussion

Thursday forenoon, October 18

(Combined with Section on Partial Denture Prosthesis)

SYMPOSIUM: PROBLEMS CONFRONTING THE GENERAL PRACTITIONER IN COMBINING COMPLETE UPPER AND PARTIAL LOWER DENTURES

PROBLEMS OF OCCLUSION
LeRoy E. Kurth, Chicago

PROBLEMS OF CONSTRUCTION
Stanley G. Standard, New York

Section on Operative Dentistry

Officers • *Rex Ingraham, chairman*
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Tuesday afternoon, October 16

(Combined with Section on Partial Denture Prosthesis)

DIAGNOSIS AND CORRECTION OF OCCLUSAL DYSHARMONIES IN THE PREPARATION FOR FIXED RESTORATIONS
Ernest B. Nuttall, Baltimore

VARIOUS APPLICATIONS AND ADVANTAGES OF THE HYDROCOLLOID INDIRECT TECHNIC
Morris J. Thompson, Beverly Hills, Calif.
Discussion and motion picture film

Wednesday forenoon, October 17

(Combined with Section on Periodontia)

SYMPOSIUM: ETIOLOGY AND TREATMENT OF PERIODONTAL DISEASES AND THE RELATION OF OPERATIVE PROCEDURES AND PREVENTIVE MEASURES TO THESE CONDITIONS

INTERRELATION OF LOCAL AND SYSTEMIC CAUSATION IN PERIODONTAL DISEASE (BONE FACTOR CONCEPT)
Irving Glickman, Boston

SURGICAL TREATMENT OF PERIODONTAL INVOLVEMENTS
Robert L. Dement, Atlanta, Ga.

IMPORTANCE OF PROPHYLACTIC PROCEDURES IN THE TREATMENT OF PERIODONTAL DISEASE
Maynard K. Hine, Indianapolis

OCCLUSOCONDYLAR HARMONIZATION: A FACTOR IN THE TREATMENT OF PERIODONTAL CONDITIONS
Cecil H. Collins, Los Angeles

SPLINTING: THEORY AND PRACTICE
Marvin Simring, New York

PREVENTIVE MEASURES THROUGH THE USE OF PROPER OPERATIVE PROCEDURES IN THE TREATMENT OF BOTH ADULT AND CHILD PATIENTS
Gerald D. Stibbs, Seattle

Intrapanel discussion

Wednesday afternoon, October 17

SYMPOSIUM: DIRECT RESINOUS FILLING MATERIALS
Moderator: George C. Paffenbarger, Washington, D. C.

CHEMISTRY
Gerhard Brauer, Washington, D. C.
Discussion: J. F. Volker, Birmingham, Ala.

PHYSICAL PROPERTIES
Irl C. Schoonover, Washington, D. C.
Discussion: Ralph W. Phillips, Indianapolis

CLINICAL ASPECTS
Herbert D. Coy, Richmond, Va.
Discussion: Robert B. Wolcott, Bethesda, Md.

EFFECT ON TOOTH PULP
Alexander Seelig, New York
Discussion: Isaac Schour, Chicago

Thursday forenoon, October 18

(Combined with Section on Roentgenology)

INFLUENCE OF ROENTGENOLOGIC TECHNIC ON THE DIAGNOSIS OF DENTAL CARIES
Robert J. Nelsen, Washington, D. C.

INTERPRETIVE AND MISINTERPRETIVE ROENTGENOLOGIC FACTORS IN RESTORATIVE PROCEDURES
Robert E. Willey, Los Angeles

AN EVALUATION OF TEMPOROMANDIBULAR JOINT ROENTGENOGRAPHY
William J. Updegrave, Philadelphia

Section on Oral Surgery

Officers • James R. Cameron, chairman
H. Newman Brownson, vice-chairman

Tuesday afternoon, October 16

(Combined with Section on Roentgenology)

ROENTGENOLOGIC ASPECTS OF ORAL SURGICAL PROBLEMS
Harrison M. Berry, Jr., Philadelphia

DIFFERENTIAL ROENTGENOLOGIC DIAGNOSIS IN ORAL SURGERY
Stanley A. Lovestedt, Rochester, Minn.

Wednesday forenoon, October 17

EVALUATION OF SOME ORAL SURGICAL PROBLEMS FROM THE VIEWPOINT OF DIAGNOSIS AND TREATMENT
John P. Looby, Philadelphia

ALVEOLECTOMY
Karl Hayden Wood, Washington, D. C.

Wednesday afternoon, October 17

(Combined with Section on Full Denture Prosthesis)

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Russell W. Tench, York, Pa.

Thursday forenoon, October 18

ACUTE ODONTOGENIC INFECTIONS
Edward L. Sleeper, Boston

SWELLINGS OF THE FACE, NECK AND ORAL CAVITY
Brice M. Dorsey, Baltimore

Section on Orthodontics

Officers • J. William Adams, chairman
William R. Joule, vice-chairman

Tuesday afternoon, October 16

(Combined with Section on Research)

EFFECT OF CONDYLOTOMY ON MANDIBULAR FORM
Joseph R. Jarabak, East Chicago, Ind.

APPLICATION OF ELECTROMYOGRAPHY TO DENTAL RESEARCH
Samuel Pruzansky, Chicago

Wednesday forenoon, October 17

MALOCCLUSION: ITS PREVENTION
Robert Hedges, Jenkintown, Pa.

ANALYSIS AND TREATMENT OF UNILATERAL CROSS BITE IN THE DECIDUOUS DENTITION
J. William Adams, Indianapolis

Wednesday afternoon, October 17

(Combined with Section on Practice Management)

ECONOMIC PHASES OF ORTHODONTICS
George M. Anderson, Baltimore

ORTHODONTICS IN GENERAL PRACTICE
A. E. Kopp, Milwaukee

Thursday forenoon, October 18

(Combined with Section on Dental Public Health)

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Section on Partial Denture Prosthesis

Officers • *Paul A. Edmand, chairman*
Alfred C. Young, vice-chairman

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Morris J. Thompson, Beverly Hills, Calif.
Discussion and motion picture film

Wednesday forenoon, October 17

BIOCHEMICAL RESTORATIONS OF FIRST PERMANENT MOLAR EDENTULOUS AREA
Arthur O. Klaffenbach, Iowa City, Iowa

PONTIC MORPHOLOGY AND THE FACING PROBLEM IN FIXED PROSTHESIS
Donald E. Smith, Los Angeles

Wednesday afternoon, October 17

(Combined with Section on Periodontia)

THE PARTIAL DENTURE AND ITS RELATION TO PERIODONTIA
Arthur F. Schopper, Kansas City, Mo.

SOME PERIODONTAL CONSIDERATIONS IN PARTIAL DENTURE PLANNING
John S. McKenzie, Miami, Fla.
Discussion: Kenneth A. Bignell, Chicago, and James C. Westbrook, Jr., Birmingham, Ala.

Thursday forenoon, October 18

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Section on Pedodontics and Oral Hygiene

Officers • George W. Teuscher, chairman
William A. Jordan, vice-chairman

Tuesday afternoon, October 16

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Harry Strusser, New York

THE ASKOV DENTAL DEMONSTRATION
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IMPORTANCE OF DENTAL ROENTGENOGRAPHIC EXAMINATIONS
J. Clifton Eselman, Pittsburgh

VALUE OF A STUDY OF SERIAL ROENTGENOGRAPHS OF CHILDREN
Harold K. Addelston, New York

Wednesday afternoon, October 17

(Combined with Section on Research)

JAW GROWTH AND TOOTH ERUPTION RELATED TO SPACE MAINTENANCE
Thomas D. Speidel, Minneapolis

EFFECTS OF PREMATURE LOSS OF DECIDUOUS TEETH AND SEQUENCE OF ERUPTION OF PERMANENT TEETH ON MALOCCLUSION
Sidney M. Kronfeld, New York

PRACTICAL USE OF SPACE MAINTENANCE
James J. Kennedy, Chicago

Thursday forenoon, October 18

PROSTHESIS FOR RESTORING THE LOST VERTICAL DIMENSION IN THE MUTILATED CLEFT PALATE PATIENT
Gordon D. Howard, Chicago

PULP CURETTAGE
Donald B. Chatterton, San Diego, Calif.

Section on Periodontia

Officers • Roy O. Elam, Sr., chairman
Walter Leabo, vice-chairman

Tuesday afternoon, October 16

OPERATIVE METHODS IN PERIODONTAL SURGERY
Walter Leabo, Shreveport, La.

REATTACHMENT IN PERIODONTAL THERAPY
Sigurd Ramfjord, Ann Arbor, Mich.
Discussion: Henry M. Goldman, Boston

Wednesday forenoon, October 17

(Combined with Section on Operative) Dentistry)

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Intrapanel discussion

Wednesday afternoon, October 17

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Arthur F. Schopper, Kansas City, Mo.

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John S. McKenzie, Miami, Fla.
Discussion: Kenneth A. Bignell, Chicago, and James C. Westbrook, Jr., Birmingham, Ala.

Thursday forenoon, October 18

(Combined with Section on Practice Management)

PERIODONTIA SHOULD BE AN ECONOMIC ASSET TO YOUR PRACTICE
Harry B. McCarthy, Baltimore

PRACTICAL MANAGEMENT OF OCCLUSAL DYSFUNCTIONS IN PERIODONTAL THERAPY
B. O. A. Thomas, Seattle
J. W. Gallagher, Seattle

Section on Practice Management

Officers • Cecil H. Bliss, chairman
Charles H. Kendall, vice-chairman

Tuesday afternoon, October 16

CONVERTING RECEIVABLES INTO CASH
J. C. Almy Harding, San Diego, Calif.

THE DENTIST CONSIDERS HIS FINANCIAL FUTURE
Merritt C. Pedersen, Lincoln, Neb.

Wednesday forenoon, October 17

(Combined with Section on Dental Public Health)

DENTAL POSTPAYMENT PLANS: THE PUBLIC HEALTH VIEWPOINT
Ralph H. Campbell, Detroit

DENTAL POSTPAYMENT PLANS: THE GENERAL PRACTITIONER'S VIEWPOINT
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Section on Research

Officers • Helmut A. Zander, chairman
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Tuesday forenoon, October 16

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Joseph R. Jarabak, East Chicago, Ind.

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Moderator: Luzerne G. Jordan, Washington, D. C.

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H. J. Caul, Washington, D. C.
Discussion: Stanley D. Tylman, Chicago

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Frank E. Jeffries, San Francisco
Discussion: Robert J. Nelsen, Washington, D. C.

SYMPOSIUM: PLASTIC TEETH: THEIR ADVANTAGES, DISADVANTAGES AND LIMITATIONS

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Sidney M. Kronfeld, New York

PRACTICAL USE OF SPACE MAINTENANCE
James J. Kennedy, Chicago

Thursday forenoon, October 18

SYMPOSIUM: STUDY OF ENAMEL
Moderator: Aaron S. Posner, M.S., Washington, D. C.

INFLUENCE OF NUTRITION ON THE COMPOSITION OF ENAMEL AND OTHER MINERALIZED TISSUES
Albert E. Sobel, Ph.D., Brooklyn
Discussion: Hermann Becks, San Francisco

STUDY OF ENAMEL BY ELECTRON MICROSCOPY
David B. Scott, Bethesda, Md.
Ralph W. G. Scott, Bethesda, Md.
Discussion: Reidar F. Sognnaes, Boston and Max Swerdlow, B.S., Washington, D. C.

APATITE STRUCTURE
Sterling B. Hendricks, Ph.D., Washington, D. C.
Discussion: Otto Trautz, Ph.D., New York

Section on Roentgenology

Officers • Lee R. Main, Chairman
W. J. Updegrave, vice-chairman

Tuesday afternoon, October 16

(Combined with Section on Oral Surgery)

ROENTGENOLOGIC ASPECTS OF ORAL SURGICAL PROBLEMS
Harrison M. Berry, Jr., Philadelphia

DIFFERENTIAL ROENTGENOLOGIC DIAGNOSIS IN ORAL SURGERY
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Harold K. Addelston, New York

Wednesday afternoon, October 17

ROENTGENOGRAPHIC TECHNIC FOR IMPROVED VISUALIZATION OF TOOTH STRUCTURES

Albert G. Richards, M.S., Ann Arbor, Mich.

RADIOACTIVE METALS FOR DENTAL INVESTIGATIONS

William Ward Wainwright, Chicago

Thursday forenoon, October 18

(Combined with Section on Operative Dentistry)

INFLUENCE OF ROENTGENOLOGIC TECHNIC ON THE DIAGNOSIS OF DENTAL CARIES

Robert J. Nelsen, Washington, D. C.

INTERPRETIVE AND MISINTERPRETIVE ROENTGENOLOGIC FACTORS IN RESTORATIVE PROCEDURES

Robert E. Willey, Los Angeles

AN EVALUATION OF TEMPOROMANDIBULAR JOINT ROENTGENOGRAPHY

William J. Updegrave, Philadelphia

Clinic Program

Officers • Marcus H. Burton, chairman
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Philadelphia Dental Clinic Club

TRANSPARENT ACRYLIC PATTERNS FOR CROWN AND BRIDGE CASTINGS
Ford A. Stevens, Philadelphia

POSITIVE RETENTION IN LOWER DENTURES WITH SPECIAL EMPHASIS ON THE PLANE OF OCCLUSION
Fred A. Slack, Jr., Thomas S. Slack, Philadelphia

PIN INLAY ATTACHMENTS FOR ANTERIOR BRIDGEWORK
Edward A. Mann, Chester, Pa.

TECHNICS FOR INDIRECT GOLD INLAY IMPRESSIONS
John Z. Mackenson, Charles B. Keil, Philadelphia

A CHILD AND PARENT'S DAY IN DENTISTRY
Carl A. LeCleire, Germantown, Pa.

ORAL SURGICAL PROCEDURES FROM THE GENERAL PRACTITIONER'S VIEWPOINT
H. Vernon Lapp, Elkins Park, Pa.

DEMONSTRATION OF FULL COVERAGE PREPARATION AND HYDROCOLLOID TECHNIC AS APPLIED IN FIXED BRIDGEWORK AND MOUTH REHABILITATION PROCEDURE
Russell U. Klees, Philadelphia

HINTS ON DENTAL PRACTICE
A. Kassab, Chester, Pa.

ORTHODONTICS FOR THE GENERAL PRACTITIONER
John M. Jackson, Philadelphia

HYDROCOLLOID IMPRESSION TECHNIC FOR CROWNS, BRIDGES AND INLAYS
Ralph L. Hart, Philadelphia

ROENTGENOLOGIC TECHNIC FOR TEMPOROMANDIBULAR ARTICULATION
William J. Updegrave, Philadelphia

Crown and Bridge

ANTERIOR PINLEDGE ABUTMENTS
Clement C. Alpert, Washington, D. C.

VARIATIONS IN RETENTION FORMS FOR FIXED BRIDGE ABUTMENTS
Timothy M. Bishop, Chicago

THREE-QUARTER CROWN FOR ANTERIOR TEETH
Edward R. Johnston, Robert F. Lamb, Washington, D. C.

FULL MOUTH RECONSTRUCTION
N. G. Wills, K. B. Shelton, Connersville, Ind.

PORCELAIN JACKET CROWN CONSTRUCTION
Horace M. Oren, Washington, D. C.

VARIATIONS OF TOOTH CONTOURS IN JACKET CROWN AND BRIDGE RESTORATIONS
Charles L. Pincus, Beverly Hills, Calif.

FULL MOUTH RESTORATIVE DENTISTRY WITH PRECISION ATTACHMENTS
I. Franklin Miller, Pittsburgh

OCCLUSION: METHODS OF CORRECTING MAJOR OR MINOR DYSHARMONIES
Matthew Eisenman, Wilmington, Del.

INDIRECT BRIDGE TECHNIC SHOWING METHOD OF TAKING IMPRESSION WITH SPECIALLY PREPARED BANDS
William A. Dvorak, St. Paul

USE OF THE BITE-IMPRESSION TRAY FOR HYDROCOLLOID IMPRESSION MATERIALS IN MAKING INLAYS, CROWNS AND BRIDGES
Edwin H. Getz, New York

TWO-VISIT BRIDGE INSERTIONS WITH HYDROCOLLOID TECHNIC
Louis Levinson, Washington, D. C.

ONE-PIECE CAST FIXED BRIDGES BY THE HYDROCOLLOID IMPRESSION TECHNIC
Irwin G. Neer, Chicago

HYDROCOLLOID INDIRECT TECHNIC
Morris J. Thompson, Beverly Hills, Calif.

THE FACING PROBLEM IN FIXED BRIDGEWORK
Benjamin W. Dunn, San Antonio, Texas

PONTIC MORPHOLOGY AND THE FACING PROBLEM IN FIXED PROSTHESIS
Donald E. Smith, Robert E. Willey, Los Angeles

INLAY RETAINERS IN FIXED BRIDGE CONSTRUCTION
William W. Franklin, Amarillo, Texas

Operative Dentistry

A PRACTICAL AMALGAM TECHNIC
John J. Berg, Wayne, Pa.

AN IMPROVED MATRIX TECHNIC FOR AMALGAM RESTORATIONS
Paul A. Moore, Bethesda, Md.

CORRECT GINGIVAL MARGINS FOR CLASS II AMALGAM RESTORATIONS
Elliot R. Motley, Charlotte, N. C.

AMALGAM—MANIPULATION AND INSERTION
Norman H. Strong, Detroit

DEMONSTRATION OF MORE EFFICIENT METHODS OF PREPARING AMALGAM AND INLAY CAVITIES USING DIAMOND INSTRUMENTS OF SPECIAL DESIGN AND CARBIDE BURS
Rex Ingraham, John T. Ankeney, Los Angeles

MOD INLAYS—INDIRECT METHOD
L. M. Ingebrigtsen, Minneapolis

PRECISION INLAY CASTING
Herbert D. Coy, Ray A. Collins, Richmond, Va.

CAVITY PREPARATION USING ATOMIZED WATER SPRAY
Raymond A. Schroeder, Minneapolis

CAVITY PREPARATIONS AND CARVING OF DIRECT WAX PATTERNS FOR INLAYS AND THREE-QUARTER CROWNS
Russell L. Grace, Washington, D. C.

WAX PATTERN MANIPULATION FOR DIRECT GOLD INLAYS
William D. King, Bethesda, Md.

SUGGESTIONS FOR MAKING BETTER INLAYS WITH HYDROCOLLOID TECHNIC
Peyton Sidney Neuwirth, Peoria, Ill.

RESIDUARY HEAT AND ITS EFFECTS ON THE CAST GOLD INLAY
J. William Snyder, Thurston H. Ross, Jr., Los Angeles

THE USE OF SELF-POLYMERIZING ACRYLICS IN OPERATIVE DENTISTRY
David M. Bear, Richmond, Va.

COMPENSATING THE SHRINKAGE FACTOR IN DIRECT PLASTIC FILLINGS
Lester M. Lucas, Washington, D. C.

SIMPLIFIED TECHNIC FOR QUICK-CURING PLASTIC FILLINGS
Leon Saks, Cincinnati

APPLICATION OF ANTERIOR MATRIX FOR FAST-CURING RESINS
Henry C. Wray, Jr., Washington, D. C.

OPERATIVE DENTISTRY UNDER GENERAL ANESTHESIA FOR THE HANDICAPPED AND DIFFICULT PATIENTS
Stanley R. Spiro, New York

ASPECTS OF GENERAL ENDODONTICS
O. F. Leberman, Washington, D. C.

BACTERIOLOGIC PROCEDURES FOR USE IN ENDODONTICS
George W. Burnett, Washington, D. C.

PREOPERATIVE MEDICATION FOR THE AMBULATORY PATIENT
James E. Bauerle, Washington, D. C.

SYSTEMIC ADMINISTRATION OF THE ANTIBIOTICS IN DENTISTRY
John I. Ingle, Seattle

SURGICAL PROCEDURES AND USE OF ANTIBIOTICS IN GENERAL PRACTICE
Harry E. Loving, Bristol, Tenn.

WHAT'S NEW IN SALIVARY CHEMISTRY FOR DENTISTRY
Frances Krasnow, New York

Oral Surgery and Anesthesia

TREATMENT OF FASCIAL ABSCESSES OF ODONTOGENIC ORIGIN
Norman R. Nathanson, Framingham, Mass.

THIRD MOLAR TRANSPLANTATION
Horace M. Miller, Portland, Ore.

A CAST SPLINT FOR MAXILLARY AND MANDIBULAR FRACTURES
H. B. Dierdorff, Phoenixville, Pa.

ARE APICOECTOMIES NECESSARY?
Jacob A. Englander, New York

SURGICAL HINTS
Benjamin Tucker, Babylon, N. Y.

SURGICAL AND MAXILLOFACIAL PROSTHESIS
Lawrence J. Chasko, Washington, D. C.

DRUGS IN ORAL SURGERY
Charles D. Eatman, Rocky Mount, N. C.

USES OF ETHYL CHLORIDE IN DENTISTRY
Robert H. Getman, Davenport, Iowa

INTRAVENOUS ANESTHESIA
Wayne R. Dunnom, Oak Park, Ill.

COMPLETE REHABILITATION OF THE MOUTH UNDER GENERAL ANESTHESIA (CEREBRAL PALSY, ETC.)
Raymond W. Herndon, Washington, D. C.

PREMEDICATION IN DENTAL AND ORAL SURGERY
Irving Schuman, New Rochelle, N. Y.

PENICILLIN IONTOPHORESIS IN ORAL SURGERY
Charles R. Shea, Washington, D. C.

USE OF FORCEPS IN ORAL SURGERY
Marshall I. Kader, Baltimore

A TECHNIC OF PENTOTHAL SODIUM ANESTHESIA
Spencer Muir Crump, Marjorie E. Dick, Glendale, Calif.

PITFALLS IN DIAGNOSING IMPACTED MAXILLARY CUSPIDS
Jack B. Caldwell, Washington, D. C.

Orthodontics

PREVENTIVE ORTHODONTICS
George R. Cadman, Z. Bernard Lloyd, Paul I. Bauman, Washington, D. C.

THE IMPORTANCE OF CONTROLLING HABITS IN ALL PHASES OF DENTISTRY
Clifford L. Whitman, Hackensack, N. J.

A PUBLIC HEALTH APPROACH TO ORTHODONTIC CARE
Henry C. Sandler, New York

CAST SPACE MAINTAINERS
Sidney M. Kronfeld, New York

ANOMALIES IN THE DENTITION COMPLEMENT: ORTHODONTIC ASPECTS
William H. Day, Washington, D. C.

ORTHODONTICS BEFORE AND AFTER IN GENERAL PRACTICE
A. E. Kopp, Milwaukee

CONSTRUCTION OF ACRYLIC RETAINERS WITHOUT FLASKING OR PRESSING
Thomas D. Pryse, Washington, D. C.

Pedodontics

TREATMENT OF FRACTURED ANTERIOR TEETH OF CHILDREN
Robert J. Carroll, Gerard J. Casey, Chicago

THE TREATMENT AND RESTORATION OF FRACTURED INCISORS
Harold Berk, M. Michael Cohen, Boston

REPLACING MISSING ANTERIOR TEETH IN CHILDREN AND YOUNG ADULTS
James C. Brousseau, Baton Rouge, La.

RESTORING LOST VERTICAL DIMENSION FOR THE POSTOPERATIVE CLEFT PALATE PATIENT
Gordon W. Howard, Chicago

PULP PROTECTION IN YOUNG PERMANENT AND DECIDUOUS TEETH
Raymond B. Kielich, Buffalo

EFFECTIVE PULPOTOMY AND SPACE MAINTAINER TECHNICS
Henry W. Jann, San Antonio, Texas

ORAL SURGICAL PROBLEMS AND PROCEDURES IN DENTISTRY FOR CHILDREN
Neville A. Booth, Boston

FIXED AND REMOVABLE PROSTHESIS IN DENTISTRY FOR CHILDREN
Don B. Chatterton, San Diego, Calif.

ORAL DYNAMICS IN PEDODONTICS
Edward J. Kottisko, Falls Church, Va.

DEMONSTRATION OF CLINICAL TEACHING MATERIAL IN DENTISTRY FOR CHILDREN
E. Reed Smith, Washington, D. C.

ROENTGENOLOGIC INTERPRETATION IN DENTISTRY FOR CHILDREN
Martin F. Valentino, Brooklyn

OPERATIVE AND RESTORATIVE PROCEDURES USED IN THE PRACTICE OF DENTISTRY FOR CHILDREN
Floyde E. Hogeboom, Los Angeles

POINTERS FOR PARENTS: HOW TO PREPARE THE CHILD FOR HIS FIRST VISIT TO THE DENTIST
Norman H. Fortier, Pawtucket, R. I.

Periodontia

PERIODONTIA—ORAL DIAGNOSIS
Harry Roth, New York

FACTORS DETERMINING TYPES OF PERIODONTAL TREATMENTS
Thomas G. Nisbet, Charlotte, N. C.

INFLAMMATION IN PERIODONTAL DISEASE
J. W. Gallagher, Seattle

PERMANENT SPLINTING FOR PRESERVATION OF PERIODONTAL TISSUES
O. G. McKenzie, Miami, Fla.

SPLINTING IN PERIODONTIA
Marvin Simring, Brooklyn

MANAGEMENT OF THE PERIODONTAL POCKET
Thomas E. Prosser, East St. Louis, Ill.

A MODERN APPROACH TO THE CLINICAL TREATMENT OF ACUTE NECROTIZING GINGIVITIS
C. T. Pridgeon, Patuxent River, Md.

OCCLUSAL EQUILIBRATION—AN AID TO PERIODONTAL TREATMENT
Jerome F. Peters, Bethesda, Md.

FUNCTIONAL OCCLUSAL DISPLACEMENT—ANALYSIS AND TREATMENT
Albert G. Paulsen, Gerald J. Rose, Washington, D. C.

PACK METHOD AND COAGULATION
Samuel H. Goodfriend, Chicago

HOME CARE FOR THE PERIODONTIA PATIENT BEFORE AND AFTER GINGIVECTOMY AND APPLIANCE FOR BRUXISM
Walter J. Nock, Chicago

A PRACTICAL INSTRUMENTARIUM FOR GINGIVECTOMIES
Harry H. Luton, Grand Rapids, Mich.

CALCULUS CONTROL BY THE USE OF A PROPERLY DESIGNED TOOTHBRUSH WITH AN EFFECTIVE DENTIFRICE
Marvin Jacobson, San Antonio, Texas

Prosthodontics

IMPRESSION TECHNIC FOR FULL LOWER DENTURES
I. A. Kirby, Youngstown, Ohio

MUSCLE TRIMMED IMPRESSION FOR LOWER IMMEDIATE INSERTION DENTURE
R. W. Ellis, Salem, S. D.

THE DIFFICULT LOWER IMPRESSIONS
P. L. Mathisen, Chicago

AN IMMEDIATE DENTURE PROCEDURE UTILIZING THE PLASTER SPLINT FOR PROPER CONTOUR OF THE LABIAL FLANGE
Leslie R. Allen, Washington, D. C.

PAINTING IMPRESSION ON THE UPPER ARCH
L. J. Grant, Columbia City, Ind.

NATURAL ESTHETICS IN IMMEDIATE FULL DENTURES
J. E. Faltermayer, Washington, D. C.

REPRODUCING NATURAL ANTERIOR TEETH IN ACRYLIC IN FULL DENTURE CONSTRUCTION
John H. Guion, Charlotte, N. C.

SUCCESSFUL FULL DENTURES BY ACCURATE MEASUREMENT AND CONTROL OF VERTICAL DIMENSION
Meyer M. Silverman, Washington, D. C.

EMBRASURE—SADDLE CLASP
William J. Palanky, Trenton, N. J.

PRECISE CENTRIC BALANCE AND ADJUSTMENTS IN COMPLETED DENTURES
William Roy Eberle, Chicago

CONSECUTIVE STEPS IN FULL DENTURE CONSTRUCTION
Henry C. Parker, Charlotte, N. C.

SIMPLIFIED FULL DENTURE PROSTHESIS
R. J. Gartland, Sioux Falls, S. D.

SPECIAL PROBLEMS IN FULL DENTURE CONSTRUCTION
Frank M. Kyes, Bethesda, Md.

FUNCTIONAL FULL DENTURE CONSTRUCTION
Victor N. Jaffee, Washington, D. C.

PROSTHETIC USES OF AUTOPOLYMERS
LaMar W. Harris, Chicago

STRESS-BREAKER DESIGNS AND CONSTRUCTION AS APPLIED TO PARTIAL DENTURES
J. B. Stoll, W. W. Dann, Washington, D. C.

STABILIZING CLASP ATTACHMENT FOR PARTIAL DENTURE
Stanley Standard, New York

MOUTH PREPARATION FOR PARTIAL DENTURES
Mack L. Parker, Bethesda, Md.

IMPRESSION TECHNIC FOR PARTIAL DENTURES WHERE THERE ARE NO TEETH DISTAL TO THE SADDLE AREA
W. T. Walsh, Baltimore

THE PRECISION PARTIAL LOWER DENTURE WITH CAST GOLD FRAME
Joseph Stewart Frost, Pittsburgh

A SIMPLE ACCURATE METHOD FOR OBTAINING FULL UPPER AND LOWER DENTURE IMPRESSIONS
Joseph F. Smiggen, Detroit

Roentgenology

DENTAL INVESTIGATIONS WITH RADIOACTIVE MATERIALS
William Ward Wainwright, Chicago

USEFUL POINTS IN ROENTGENOLOGIC TECHNICS AND INTERPRETATIONS
Herman H. Kothe, Washington, D. C.

USE OF A PROJECTOR TO DEMONSTRATE ROENTGENOGRAPHIC DIAGNOSIS TO THE PATIENT
Herbert H. Holliger, Huron, Ohio

APPLICATIONS OF CEPHALOMETRICS
Edward P. Suchard, Washington, D. C.

American Dental Assistants Association

PROGRESS IN DENTISTRY
Dorothy Jennings, Kansas City, Mo.

EDUCATION OF PATIENTS ABOUT DIET AND NUTRITION
Ione Powell, Vermillion, S. D.

DENTAL ASSISTING IN EMERGENCIES
Marilyn Dickerson, San Antonio, Texas

FUNDAMENTAL DENTAL ANATOMY FOR THE ASSISTANT
Olive Steinbeck, Charleston, W. Va.

CARE OF HANDPIECES
Jeanne Ostermeier, Downers Grove, Ill.

MODEL DUPLICATING
Aileen Kottal, Hutchinson, Kans.

BENEFITS OF CERTIFICATION
Ardis Clark, Washington, D. C.

STERILIZATION OF INSTRUMENTS
Frances Wagner, Holstein, Iowa

INDIRECT GOLD INLAYS
Corinne M. Kernes, East Orange, N. J.

ORIGINALITY IN THE RECEPTION ROOM
Lee Barrick, San Diego, Calif.

THE USE AND ABUSE OF THE TELEPHONE
Betty Macy, Miami, Fla.

AIDS TO ASSIST THE ASSISTANT
Evelyne L. Heeter, Elkhart, Ind.

THE DENTAL ASSISTANT'S PART IN ROLLING AND MANIPULATING GOLD FOIL
Mabel Urwiller, Omaha

THE DENTAL ASSISTANT IN ORAL SURGERY
Thelma Pinney, Shreveport, La.

CARVING OF WAX PATTERNS FOR INDIRECT INLAY TECHNIC
Barbara Schroeder, Columbus

TELEPHONE PERSONALITY
Myrtle Wiggins, Montgomery, Ala.

ORAL SURGERY SETUPS
Eula Stamer, Oakland, Calif.

ACRYLIC CASTS
Rosemary Borgert, St. Cloud, Minn.

GENERAL HINTS IN OFFICE PROCEDURE
Louella Dopp, New York

THE USUAL AND UNUSUAL IN DENTAL ROENTGENOGRAPHY
Mildred Dittmar, San Antonio, Texas

American Dental Hygienists' Association

THE HYGIENIST AND ROENTGENOLOGY
Joyce A. Greenawalt, Mansfield, Ohio

THE ROLE OF THE HYGIENIST IN ORTHODONTICS
Shirley A. Hoos, Rochester, N. Y.

KEY TO DENTAL HEALTH THROUGH EDUCATION OF PATIENTS
Gloria Tartaglia, Esther Lenuzzi, Syracuse, N. Y.

HOW MUCH SUGAR DO YOU EAT?
Lorna Bruning, Doris K. Jensen, Minneapolis

ANALYZING THE PRIVATE PRACTICE RECALL SYSTEM (PROPHYLAXIS—ROENTGENOGRAM—PROSTHODONTICS—FLUORIDE TREATMENT)
Mae J. Sarsfield, Philadelphia

PARENT-CHILD APPROACH TO DENTAL HEALTH
Ruth E. Crabtree, Holyoke, Mass., and Genevieve Cummings, West Springfield, Mass.

DIETARY HABITS IN RELATION TO DENTAL HEALTH
Mary E. Cahoon, Brockton, Mass., and Agnes T. Shite, North Quincy, Mass.

KNOW YOUR SCHOOL PROGRAM
Camille S. Toolan, Rochester, N. Y.

SCIENTIFIC POSTURE AND WE ARE WHAT WE EAT
Alice H. Grady, St. Augustine, Fla.

PATIENT EDUCATION—DEVELOPMENT AND ERUPTION OF PERMANENT DENTITION
Virginia H. Allan, Washington, D. C.

COMPARISON OF DISCLOSING SOLUTIONS
Bertha L. Morgan, Silver Springs, Md.

TECHNICS IN ORAL HYGIENE
Beverly A. Wark, Takoma Park, Md.

FOOD FOR THOUGHT
Cecile Feiler and Mrs. D. Riblet, New York

THE FLANNEL GRAPH IN DENTAL HEALTH EDUCATION
Virginia M. Marten, Indianapolis

DUTIES OF A HYGIENIST IN ORTHODONTICS
Ann Ragsdale, Atlanta, Ga.

THE DAY OF A DENTAL HYGIENIST
Elva E. Lund, Oak Park, Ill.

OPERATIVE TECHNICS IN SCALING
Florence Baker, Chevy Chase, Md.

RECALL SYSTEMS
Gertrude Buerkle, Edgewood, R. I.

Unclassified

SIMPLE DENTAL OFFICE PHOTOGRAPHY
Paul A. Risk, Lafayette, Ind.

PHOTOGRAPHY IN A GENERAL PRACTICE
G. A. Lazenby, Jr., Statesville, N. C.

CLINICAL PHOTOGRAPHY POSSIBILITIES
Jackson W. Bates, Ovid, Mich.

APPOINTMENT HANDLING AND RECALLS
Wallace N. Kirby, Downers Grove, Ill.

DIAGNOSIS AND PATIENT EDUCATION FOR MUTUAL BENEFIT
J. Lewis Blass, New York

EFFICIENCY IN OFFICE MANAGEMENT
Leonard V. Foley, Chicago

Television Program

Subcommittee on Television Clinics
Lester W. Burket, chairman
Joseph L. Bernier
Marcus H. Burton
Wilbur D. Johnston
Robert G. Kesel

Clinical demonstrations performed at the Mount Alto Veterans Administration Hospital in Washington, D. C., will be televised in color and transmitted to receiving units located in the lower level of the National Guard Armory. The program, sponsored by E. R. Squibb and Sons, will use television equipment supplied and operated by Remington-Rand, Inc. Admission to the television clinics will be limited to dentists. Tickets for each period of the program may be obtained at the ticket booth inside the entrance to the exhibit hall on presentation of a current A.D.A. membership card.

Tuesday, October 16

10:00 A.M.

OPENING PROGRAM—GREETINGS:

Joel T. Boone, M.D., Medical Director, Veterans Administration

Bion R. East, Assistant Medical Director, Dental Services, Veterans Administration

Harold W. Oppice, President, American Dental Association

10:15 A.M.

AMALGAM RESTORATION

CAVITY PREPARATION:

AIRBRASIVE METHOD

Kenneth M. Broesamle, Washington, D. C.

PHYSICAL PROPERTIES OF AMALGAM

Denton L. Smith, Washington, D. C.

INSERTION OF THE FILLING

Robert B. Wolcott, Washington, D. C.

11:15 A.M.

TOPICAL FLUORIDE TREATMENT DEMONSTRATION

John W. Knutson, Washington, D. C.

11:30 A.M.

ROOT RESECTION

Louis I. Grossman, Philadelphia

2:00 P.M.

COMPLETE DENTURE SERVICE

J. V. Niiranen, Washington, D. C.

3:00 P.M.

SELF-CURING RESINOUS FILLING MATERIALS: THEIR PHYSICAL PROPERTIES AND RECOMMENDED TECHNICS FOR USING THEM

Robert J. Nelsen, Washington, D. C.

3:30 P.M.

TECHNICAL PROCEDURES IN THE ROENTGENOGRAPHIC EXAMINATION OF THE EDENTULOUS MOUTH AND THE TEMPOROMANDIBULAR JOINT

LeRoy M. Ennis, Philadelphia

Wednesday, October 17

10:00 A.M.

CANCEROUS AND PRECANCEROUS LESIONS

Joseph L. Bernier, Washington, D. C.

BIOPSY TECHNIC
Kurt H. Thoma, Boston

LABORATORY PROCESSING OF TISSUE
Joseph L. Bernier, Washington, D. C.

SURGICAL PROSTHESIS
A. J. Ackerman, New York

11:00 A.M.
TOPICAL FLUORIDE TREATMENT DEMONSTRATION
John W. Knutson, Washington, D. C.

11:15 A.M.
RADIOACTIVE MATERIALS IN DENTAL INVESTIGATIONS
William Ward Wainwright, Chicago

11:30 A.M.
SURGICAL TREATMENT OF PERIODONTAL DISEASES
Jerome J. Hinniker, Washington, D. C.

2:00 P.M.
IMMEDIATE DENTURE SERVICE
Axel G. Anderson, Chicago
Edwin G. Kerans, Washington, D. C.
George E. Emig, Washington, D. C.

2:30 P.M.
AMALGAM RESTORATIONS
Miles R. Markley, Denver

3:00 P.M.
PORCELAIN VENEER CROWN: ITS PREPARATION DEMONSTRATED WITH MODELS, SLIDES AND PATIENT
Stanley R. Tylman, Chicago

Thursday, October 18

10:00 A.M.
AMALGAM RESTORATION
CAVITY PREPARATION: AIRBRASIVE METHOD
Kenneth M. Broesamle, Washington, D. C.

PHYSICAL PROPERTIES OF AMALGAM
Denton L. Smith, Washington, D. C.

INSERTION OF THE FILLING
Robert B. Wolcott, Washington, D. C.

11:00 A.M.
MANAGEMENT OF THE CHILD PATIENT
E. Reed Smith, Washington, D. C.

11:30 A.M.
OBTAINING CENTRIC OCCLUSION
Ernest R. Granger, Mount Vernon, N. Y.

1:00 P.M.
CANCEROUS AND PRECANCEROUS LESIONS
Joseph L. Bernier, Washington, D. C.

BIOPSY TECHNIC
Harold R. Krogh, Washington, D. C.

LABORATORY PROCESSING OF TISSUE
Joseph L. Bernier, Washington, D. C.

2:00 P.M.
METHODS FOR INDIRECT IMPRESSIONS USING HYDROCOLLOID COMPOUND AND WAX
Ernest B. Nuttall, Baltimore

2:30 P.M.
SELF-CURING RESINOUS FILLING MATERIALS: THEIR PHYSICAL PROPERTIES AND RECOMMENDED TECHNICS FOR USING THEM
Robert J. Nelsen, Washington, D. C.

Scientific Exhibits

PERIODONTAL DISEASES
American Dental Association

THANKS TO ANIMALS
American Medical Association

RESEARCH AND TRAINING ACTIVITIES OF THE REGISTRY OF ORAL PATHOLOGY OF THE AMERICAN DENTAL ASSOCIATION AND THE ARMED FORCES INSTITUTE OF PATHOLOGY
Armed Forces Institute of Pathology

OROFACIAL FISTULAE—THE IMPORTANCE OF PROPER DENTAL DIAGNOSIS
Stanley J. Behrman, New York Hospital, Cornell Medical Center

APPROACH TO PROBLEMS OF DENTURE BALANCING THROUGH RECOGNITION OF TRUE PHYSIOLOGIC MANDIBULAR ACTION
Jesse V. Boswell, Springfield, Mo.

THE STAINING OF HARD TISSUES WITH SILVER
George Clark, Chicago Medical College; Grant L. Rasmussen, University of Buffalo Medical School, and Margaret Powers, University of Texas School of Dentistry, Veterans Administration

THE INTEGRATION OF RESEARCH IN A PUBLIC SCHOOL DENTAL PROGRAM
Abram Cohen, Board of Public Education of Philadelphia

WE COVER THE STATE
H. S. Dwyer, New Hampshire State Department of Health

RESEARCH ON DENTAL CARIES AT EASTMAN DENTAL DISPENSARY
Eastman Dental Dispensary, Rochester, N. Y.

CANCER OF THE MOUTH
John B. Erich and Gordon B. New, Mayo Clinic

KNOW YOUR FOOD AND DRUG ADMINISTRATION
Federal Security Agency, Food and Drug Administration

BALANCED INTRAVENOUS ANESTHESIA—A RECENT TECHNIC
Harry J. Field and Alfred A. Ackerman, Newark, N. J.

EDUCATIONAL ASPECTS OF DENTISTRY FOR CHILDREN
M. Joel Freedman, New York University College of Dentistry

HIGHLIGHTS OF DENTAL RESEARCH PRESENTED BY GEORGETOWN UNIVERSITY SCHOOL OF DENTISTRY
Georgetown University School of Dentistry

SCIENTIFIC NURSING NIPPLE—AIDING IN THE PREVENTION OF CROOKED TEETH AND RELIEF OF COLIC FROM GASES
Walter H. Griesinger, Portland, Ore.

IMMEDIATE ROOT RESECTION
Louis I. Grossman, University of Pennsylvania School of Dentistry

TUMORS AND DISEASES OF THE ORAL CAVITY, THEIR DIAGNOSIS AND TREATMENT
Timothy A. Hardgrove, Fond du Lac, Wis.

CLEFT PALATE PROSTHESIS
Cloyd S. Harkins and William R. Harkins, Osceola Mills, Pa., and John F. Harkins, Erie, Pa.

THE USE OF CHROME STEEL IN CHILDREN'S DENTISTRY
William P. Humphrey, Denver

SALIVARY CHEMISTRY FOR DENTISTRY IN PROGRESS
Frances Krasnow, The Murry and Leonie Guggenheim Dental Clinic

COMPLETE MOUTH REHABILITATION
Harry Kazis, Boston

THE TEMPOROMANDIBULAR JOINT SYNDROMES AND THE FREEWAY SPACE AND THEIR SIGNIFICANCE IN COMPLETE MOUTH REHABILITATION
Joseph S. Landa and Stuart J. Landa, New York City

THE UNIVERSITY COMES TO YOU!
Saul Levy, University of Illinois College of Dentistry

COOPERATIVE DENTAL RESEARCH
National Bureau of Standards, American Dental Association, Army Dental Corps, Air Force Dental Corps and Veterans Administration

APPLICATIONS OF AUREOMYCIN IN DENTISTRY
Lester Hugh Roth and Gerald J. Cox, University of Pittsburgh School of Dentistry

CURRENT BIODENTAL INVESTIGATIONS AT THE NAVAL MEDICAL RESEARCH INSTITUTE
Carl A. Schlack, Naval Medical Research Institute

TUMORS OF THE ORAL CAVITY AND FACE
George S. Sharp and Robert C. Wood, University of Southern California School of Dentistry

STUDIES IN TISSUE TOLERATION OF INERT SUBSTANCES IMPLANTED TO SUPPORT MISSING TEETH
Alvin E. Strock, Boston

OBSERVATIONS OF THE PRESENCE OF NERVE FIBERS IN THE PREDENTIN AND DENTIN REGIONS
Ira R. Telford and Margaret Powers, University of Texas School of Dentistry

AIR FORCE PARTICIPATION IN JOINT ARMED SERVICES RESEARCH AND DEVELOPMENT ACTIVITIES
U. S. Air Force Dental Corps

DENTISTRY IN THE PUBLIC HEALTH SERVICE
U. S. Public Health Service

REACTION OF PULP TO AIRBRASIVE PARTICLES
Grant Van Huysen and D. A. Boyd, Indianapolis

THE IMPORTANCE OF DIAGNOSIS IN ORAL LESIONS
Dental Service, Veterans Administration

THE DENTAL HYGIENIST'S PROBLEM
Mildred E. White and Nancy Fulmine, American Dental Hygienists' Association

EVOLUTION IN THE DEVELOPMENT OF SURVEYING AND DESIGNING INSTRUMENTS FOR PARTIAL DENTURE USE
Noble G. Wills, Connersville, Ind.

A CAREER FOR NAVAL DENTAL TECHNICIANS
Department of Navy, Bureau of Medicine and Surgery

U. S. NAVAL DENTAL CORPS
Department of Navy, Bureau of Medicine and Surgery

DENTAL TREATMENT OF THE CEREBRAL PALSIED
Dental Guidance Council for Cerebral Palsy

Motion Pictures

COME CLEAN
American Dental Association

TEETH ARE TO KEEP
American Dental Association

THE BIOLOGIC APPROACH TO THE PERIODONTAL PROBLEM
Abraham Berliner, New York City

COMMUNITY ORGANIZATION FOR A DENTAL HEALTH PROGRAM
Frank P. Bertram, Oklahoma City

BONE GRAFT OF MANDIBLE IN EDENTULOUS PATIENTS
Walter A. Coakley, Brooklyn

INTRAVENOUS ANESTHESIA
Wayne R. Dunnom, Oak Park, Ill.

THE FULL LOWER IMPLANT DENTURE
Norman I. Goldberg and Aaron Gershkoff, Providence, R. I.

CENTRIC RELATIONS
Ernest Granger, Mount Vernon, N. Y.

ENDODONTIA AND IMMEDIATE APICOECTOMY
David Green, Brooklyn

POLYANTIBIOTIC TREATMENT OF PULPLESS TEETH
Louis I. Grossman, University of Pennsylvania School of Dentistry

IMMEDIATE PARTIAL DENTURE
Sampson S. Hecht, New York City

GENERAL ANESTHESIA FOR DENTISTRY
Richard M. Herd and Robert Bergner, University of Louisville Schools of Dentistry and Medicine

THE USE OF CHROME STEEL IN CHILDREN'S DENTISTRY
William P. Humphrey, Denver

FUNDAMENTALS INVOLVED IN THE SCIENCE OF BITE REVISION
Harry Kazis, Boston

THE BLEACHING OF TEETH
University of Minnesota School of Dentistry

RAPID CURING PLASTIC INLAYS
University of Minnesota School of Dentistry

CONTROLLING THE UNMANAGEABLE CHILD WITH GENERAL ANESTHESIA
Carl A. Moss, Virginia Society of Dentistry for Children, Richmond, Va.

CASTING OF DENTAL GOLD ALLOYS: THERMAL EXPANSION TECHNIC
National Bureau of Standards and American Dental Association

COMPLETE DENTURES—ALGINATE IMPRESSIONS
Department of Navy, Bureau of Medicine and Surgery

COMPLICATED EXODONTIA—INTRODUCTION
Department of Navy, Bureau of Medicine and Surgery

PARTIAL DENTURE—BIOMECHANICS
Department of Navy, Bureau of Medicine and Surgery

MANDIBULAR ANESTHESIA
Hillard R. Nevin, Novocol Chemical Manufacturing Company, Inc.

REMOVAL OF IMPACTED TEETH
Irving Salman, New York City

A CONSERVATIVE APPROACH TO IMMEDIATE DENTURE PROSTHESIS
Godfrey Schroeder, Evanston, Ill.

CONSTRUCTION OF AN ACRYLIC JACKET
J. R. Schwartz, New York City

REMOVAL OF IMPACTIONS
Harry M. Seldin, S. Daniel Seldin and William Rakower, New York City

USE OF ELEVATORS
Harry M. Seldin, S. Daniel Seldin and William Rakower, New York City

SIMPLE PREPARATIONS OF THE MOUTH FOR BETTER PROSTHETIC RESTORATIONS, SURGICAL PERIODONTIA AND TREATMENT WITH THE USE OF RADIOSURGICAL SCALPEL
Edward L. Soares, New Bedford, Mass.

INTRAORAL AND PHARYNGEAL MOVEMENTS
Harold Syrop, Veterans Administration

OPERATIVE DENTISTRY UNDER GENERAL ANESTHESIA FOR THE HANDICAPPED AND DIFFICULT PATIENTS
Stanley R. Spiro, Hyde Park, L. I., N. Y.

STUDIES ON TOOTHBRUSH ABRASION AND A NEW METHOD FOR ITS AVOIDANCE
Alvin E. Strock, Peter Bent Brigham Hospital, Boston

TOPICAL FLUORIDES—MULTIPLE CHAIR PROCEDURE
U. S. Public Health Service, Division of Dental Public Health

Technical Exhibitors

Abbott Laboratories, North Chicago, Ill.
Ackerman Manufacturing Company, Lock Box 246, Santa Monica, Calif.
Acralite Company, Inc., 230 West 41st Street, New York
Aderer, Inc., Julius, 219 E. 44th Street, New York
Allison Company, W. D., 1133 Burdsal Parkway, Indianapolis
American Cabinet Company (Div. Hamilton Mfg. Co.), Two Rivers, Wis.
American Dental Trade Association, 1010 Vermont Avenue, N. W., Washington, D. C.
American Medical Association, 535 North Dearborn Street, Chicago
American Sterilizer Company, Box 620, Erie, Pa.
Ash, Sons & Company, U.S.A., Inc., Claudius, 127 Coit Street, Irvington, N. J.
Astra Pharmaceutical Products, Inc., 332 Main Street, Worcester, Mass.
Austenal Laboratories, Inc., 5932 Wentworth Avenue, Chicago

Baker & Company, Inc., 850 Passaic Avenue, East Newark, N. J.
Boos Dental Laboratories, Inc., Henry P., 808 Nicollet Avenue, Minneapolis
Bosworth Company, Harry J., 216 W. Jackson Boulevard, Chicago
Bristol-Myers Products Division, 630 Fifth Avenue, New York
Buffalo Dental Manufacturing Company, 775 Main Street, Buffalo
Burton Manufacturing Company, 11201 West Pico Boulevard, Los Angeles
Butler Company, John O., 540 N. Lake Shore Drive, Chicago

Castle Company, Wilmot, Rochester, N. Y.
Caulk Company, The L. D., Milford, Del.
Cetylite Industries, Inc., 45-18 Court Square, Long Island City, N. Y.
Childs Manufacturing Company, 503-6 Bankers Insurance Building, Macon, Ga.
Church & Dwight Co., Inc., 70 Pine Street, New York
Cleveland Dental Manufacturing Company, The, 3307 Scranton Road, S. W., Cleveland
Coe Laboratories, Inc., 6033 S. Wentworth Avenue, Chicago
Columbia Dentoform Corporation, 131 East 23rd Street, New York
Columbus Dental Mfg. Co., The, Columbus
Cook-Waite Laboratories, Inc., 1450 Broadway, New York
Coreco Research Corporation, 1908 Broadway, New York
Corega Chemical Company, Inc., 76 Mill Road, Jersey City, N. J.
Cosmos Dental Products, Inc., 219 E. 44th Street, New York
Crescent Dental Manufacturing Company, 1837 S. Pulaski Road, Chicago

Densco, Incorporated, P. O. Box 420, Denver
Dental Development & Manufacturing Corporation, 397 Bridge Street, Brooklyn
Dental Perfection Company (See B. G. Hatch)
Dentists' Supply Company of New York, The, 220 West 42nd Street, New York
Dudley Research Corporation, 18 West 27th Street, New York
DuPont de Nemours & Company, Inc., E. I., Wilmington, Del.
Durallium Products Corporation, 809 W. Washington Boulevard, Chicago

Eastman Kodak Company, Rochester, N. Y.
Easy Plastic Products, Inc., 1 Nevins Street, Brooklyn
Electronic Surgical Equipment Company, Inc., 23rd and Arch Streets, Philadelphia

Fleet Company, Inc., C. B., Lynchburg, Va.
Friedman Specialty Company, 7 S. Dearborn Street, Chicago
Funk Sales Company, Carl H., 722 E. Center Street, Warsaw, Ind.

General Electric X-Ray Corporation, 4855 Electric Avenue, Milwaukee
Getz Corporation, The William, 7512 Greenwood Avenue, Chicago

Hall Dental Products, 210 Throop Avenue, Brooklyn
Hanau Engineering Company, Inc., 1231 Main Street, Buffalo
Handy & Harman (Dee Gold), 1900 West Kinzie Street, Chicago
Hatch Company, Inc., B. G., 24 Lawrence Street, Brooklyn
Henry H. Hirsch Dental Company, 12860 Fairhill Road, Cleveland
Hudson Products, 111 Academy Street, Jersey City, N. J.

Hu-Friedy Manufacturing Company, 3118 N. Rockwell Street, Chicago

Interstate Dental Company, Inc., 220 West 42nd Street, New York
International Dental Congress, Mr. C. deVere Green, Chairman of Publicity Committee, XIth International Dental Congress, 11 Devonshire Place, Wimpole Street, London W.1., England

Jelenko & Company, Inc., J. F., 136 West 52nd Street, New York
Johnson & Johnson, New Brunswick, N. J.
Justi & Son, Inc., H. D., 32nd and Spring Garden Streets, Philadelphia

Kerr Manufacturing Company, 6081 - 12th Street, Detroit
Konformax Division, Permatex Company, Inc., 1716 Avenue Y, Brooklyn

Lactona, Inc., St. Paul
Lea & Febiger, 600 Washington Square, Philadelphia
Lederle Laboratories Division, American Cyanamid Company, 30 Rockefeller Plaza, New York
Lippincott Company, J. B., East Washington Square, Philadelphia
Luxene, Inc., 118 East 25th Street, New York

McKesson Appliance Company, Toledo, Ohio
Manhattan Uniform Company, 509 South Wabash Avenue, Chicago
"Mann" Chemical Corporation, 520 West Main Street, Louisville, Ky.
Meisinger Company, 150 Fifth Avenue, New York
Midwest Dental Manufacturing Company, 4439 West Rice Street, Chicago
Minimax Company, The, 5905 North Clark Street, Chicago
Mizzy, Inc., 304 East 23rd Street, New York
Mosby Company, The C. V., 3207 Washington Boulevard, St. Louis
Moskey and Geiss Dental Laboratories, P. O. Box 5938, Cleveland
Moyer Company, Inc., The J. Bird, 117-121 North 5th Street, Philadelphia
Myerson Tooth Corporation, 90 Hamilton Street, Cambridge, Mass.

National Dairy Council, 111 North Canal Street, Chicago
Ney Company, The J. M., 71 Elm Street, Hartford, Conn.
Nobilium Products, Inc., 125 N. Wabash Avenue, Chicago
North American Philips Company, Inc., 750 South Fulton Avenue, Mount Vernon, N. Y.
Novocol Chemical Manufacturing Company, Inc., 2911-23 Atlantic Avenue, Brooklyn
Nu-Dent Porcelain Studio, Inc., Candler Building, 220 West 42nd Street, New York

Oral B Company, 315 South First Street, San Jose, Calif.

Parke, Davis & Company, Detroit
Peerless Appliance Company, Inc., 120-126 Eleventh Avenue, New York
Pelton & Crane Company, The, 632-652 Harper Avenue, Detroit
Pfingst & Company, Inc., 62 Cooper Square, New York
Philosophical Library, Inc., 15 East 40th Street, New York
Plastodent, Inc., 1310 Jerome Avenue, New York
Poloris Co., Inc., 109 Academy Street, Jersey City, N. J.
Precious Metals Research Works, Inc., 230 West 41st Street, New York
Premier Dental Products Company, 1001 Chestnut Street, Philadelphia
Professional Budget Plan, 207 East Washington Avenue, Madison, Wis.
Professional Dental & Mfg. Company, 4906 North Ridgeway Avenue, Chicago
Prometheus Electric Corporation, The, 401 West 13th Street, New York
Pro-phy-lac-tic Brush Company, Florence, Mass.
Pycopé, Inc., 392 Wayne Street, Jersey City, N. J.

Ransom & Randolph Company, The, Drawer 905, Toledo, Ohio
Reliance Dental Manufacturing Company, 22 E. Van Buren Street, Chicago
Richmond Dental Manufacturing Company, P. O. Box 2176, Charlotte, N. C.
Rinn-X-Ray Products, Inc., 3035-39 Fullerton Avenue, Chicago
Ritter Company, Inc., P. O. Box 848, Rochester, N. Y.
Rocky Mountain Metal Products Company, P. O. Box 1887, 1450 Galapago Street, Denver
Rota-Seat, Inc., 4606 West 21st Street, Cicero, Ill.
Rothstein Dental Laboratories, Inc., Professional Arts Building, 1722 Eye Street, N. W., Washington, D. C.
Rower Dental Supply Company, 120 Boylston Street, Boston

Saunders Company, W. B., West Washington Square, Philadelphia
Schaefer, Oskar, 1 Wilkinson Avenue, Jersey City, N. J.

Smith & Son Manufacturing Company, Lee S., Pittsburgh
Squibb & Sons, E. R., 32-14 Northern Boulevard, Long Island City, N. Y.
Star Dental Manufacturing Company, Inc., 58th and Market Streets, Philadelphia
Stern & Co., Inc., I., 320 Washington Street, Mt. Vernon, N. Y.
Stratford-Cookson Company, 4058 Haverford Avenue, Philadelphia
Surgident, Limited, 2124 South Sepulveda Boulevard, West Los Angeles, Calif.

Ticonium, 413-425 Pearl Street, Albany, N. Y.
Torp & Ornstein, 175 Bergen Street, Newark, N. J.

Union Broach Company, Inc., 37-45 West 20th Street, New York
Union Dental Company, 3201 Arch Street, Philadelphia
Universal Dental Company, 48th and Brown Streets, Philadelphia

Vernon-Benshoff Company, P. O. Box 1587, Pittsburgh

Walden Industries, Inc., 74 West 52nd Street, New York
Wallace & Tiernan Company, Inc., Box 178, Newark, N. J.
Weber Dental Manufacturing Company, The, Canton, Ohio
Wernet Dental Manufacturing Company, Inc., 105 Academy Street, Jersey City, N. J.
Whip-Mix Corporation, Inc., 411 Avery Avenue West, Louisville
White Dental Mfg. Co., The S. S., 211 South Twelfth Street, Philadelphia
Whitehall Pharmacal Company, 22 East 40th Street, New York
Wolf X-Ray Products, Inc., 59 Bank Street, New York

X-Ray Manufacturing Corporation of America, 222 Bowery, New York

Meetings of A.D.A. Agencies

BOARD OF TRUSTEES • Hotel Statler, Pan American Room, October 8 to 19.

COUNCIL ON CONSTITUTION AND BYLAWS • Hotel Statler, Council Room, October 14.

COUNCIL ON DENTAL HEALTH: CONFERENCE OF CHAIRMEN OF STATE COUNCILS ON DENTAL HEALTH AND STATE DENTAL DIRECTORS • Hotel Statler, South American Room, October 13, 9 A.M. to 5 P.M.

COUNCIL ON SCIENTIFIC SESSION: SECTION OFFICERS' MEETING • The Mayflower, October 14, 8 A.M. (breakfast meeting).

COUNCIL ON SCIENTIFIC SESSION: RECEPTION FOR CLINICIANS AND ESSAYISTS • The Mayflower, October 15, 5 to 7 P.M.

HOUSE OF DELEGATES • Hotel Statler, Presidential Room, October 15 to 18.

STATE SOCIETY OFFICERS: CONFERENCE • Hotel Statler, South American Room, October 14, 9 A.M. to 5 P.M.

STATE SOCIETY OFFICERS: LUNCHEON • Hotel Statler, Federal Room, October 14, 12:15 P.M.

Meetings of Groups in the Dental Field

AMERICAN ACADEMY OF PERIODONTOLOGY • The Mayflower, October 11 to 13, Clarke E. Chamberlain, secretary, 115 North Street, Peoria, Ill.

AMERICAN ASSOCIATION OF DENTAL EDITORS • Hotel Statler, October 13, Walter C. McBride, 660 Fisher Building, Detroit, secretary.

AMERICAN ASSOCIATION OF DENTAL EXAMINERS • Washington Hotel, October 12 and 13, Carl A. Bumstead, 924 Stuart Building, Lincoln, Neb., secretary.

AMERICAN ASSOCIATION OF PUBLIC HEALTH DENTISTS • Hay Adams Hotel, October 14, Carl L. Sebelius, Tennessee Department of Public Health, Nashville, Tenn., secretary.

AMERICAN COLLEGE OF DENTISTS • The Mayflower, October 14, Otto W. Brandhorst, 4952 Maryland Avenue, St. Louis, secretary.

AMERICAN DENTAL ASSISTANTS ASSOCIATION • Wardman Park Hotel, October 15 to 18, Mary L. Martin, 410 First National Bank Building, LaPorte, Ind., executive secretary.

AMERICAN DENTAL HYGIENISTS' ASSOCIATION • Washington Hotel, October 14 to 18, Margaret E. Swanson, 1735 Eye Street, N.W., Washington, D. C., executive secretary.

AMERICAN DENTAL GOLF ASSOCIATION • Carlton Hotel, October 14, Thomas G. McMahon, 11777 Mississippi Avenue, Los Angeles, secretary.

AMERICAN DENTURE SOCIETY • The Shoreham, October 13 and 14, Arthur L. Roberts, Aurora National Bank Building, Aurora, Ill., secretary.

AMERICAN SOCIETY OF DENTISTRY FOR CHILDREN • Willard Hotel, October 12 to 14, Hugh Keenan, Keenan-English Building, Corning, N. Y., secretary.

AMERICAN SOCIETY OF ORAL SURGEONS • Wardman Park Hotel, October 10 to 13, A. P. Williams, 788 Starks Building, Louisville, Ky., secretary.

AMERICAN ASSOCIATION OF WOMEN DENTISTS • Lafayette Hotel, October 14 and 15, Lorraine B. Thompson, 1980 East Center Avenue, Denver, secretary.

INTERNATIONAL COLLEGE OF DENTISTS • The Shoreham, October 14, Elmer S. Best, 801 Medical Arts Building, Minneapolis, secretary.

NATIONAL ASSOCIATION OF SEVENTH-DAY ADVENTIST DENTISTS • The Twenty-Four Hundred, October 12 to 14, Albert E. Burns, 1435 East Main Street, Klamath Falls, Ore., secretary.

Meetings of Fraternal Groups

ALPHA OMEGA • The Shoreham, October 14 to 16, Bernard E. Gruber, 147 West 42 Street, New York, secretary.

DELTA SIGMA DELTA • The Shoreham, October 12 to 15, S. G. Applegate, 4660 Buckingham Road, Detroit, scribe.

PSI OMEGA • Carlton Hotel, October 15, Irving M. Stransky, 59 East Madison Street, Chicago, recorder.

XI PSI PHI • Washington Hotel, October 15, William E. Koch, Jr., Metropolitan Building, 508 North Grand Boulevard, St. Louis, secretary.

General Meeting

The General Meeting of the ninety-second annual session of the Association will be held at 8:00 P.M. on Tuesday, October 16, in the Presidential Room, Hotel Statler. Senator Robert A. Taft of Ohio will speak on "The Federal Government's Role in Health and Welfare." All members and guests are invited to attend.

Social Events

PRESIDENT'S DINNER

The President's Dinner, honoring Harold W. Oppice, retiring president of the Association, will be held in the Presidential Room, Hotel Statler, Wednesday, October 17, at 7:30 P.M. Music and entertainment will be supplied by Jack Morton's orchestra. Preceding the dinner a dutch treat cocktail hour will be held in the adjacent Congressional Room. Attendance will be limited to 687. Tickets at $7.50 each may be obtained in advance by writing W. Lawrence Smallwood, chairman of the Entertainment Committee, 910 Seventeenth Street, N. W., Washington 6, D. C., or at the various information centers at the meeting.

HOMER C. BROWN LUNCHEON

A testimonial luncheon honoring Homer C. Brown will be held in the South American Room of the Statler Hotel at 12:15 P.M. on Monday, October 15. Dr. Brown, whose many years of service to dentistry was highlighted by his presidency in 1913-14, is the oldest living president of the Association. All members and guests of the Association are invited to attend. Tickets at $4.00 may be obtained from the chairman, Clyde E. Minges, Peoples Bank Building, Rocky Mount, N. C., or from informational centers at the meeting.

ANNIVERSARY LUNCHEON

A fiftieth anniversary luncheon honoring the U. S. Army Dental Corps, the National Bureau of Standards and the Georgetown University School of Dentistry will be held in the Congressional Room of the Statler Hotel, Tuesday, October 16, at 12:30 P.M. Tickets at $4.00 may be obtained from W. Lawrence Smallwood, 910 Seventeenth Street, N. W., Washington 6, D. C., or from the information centers.

NATIONAL GALLERY OF ART

A lecture and tour of the National Gallery of Art will be held on Monday, October 15, at 2:00 P.M. The speaker, using colored slides, will present a history of the gallery and discuss some of its outstanding masterpieces. The Women's Auxiliary of the District of Columbia Dental Society, sponsors of the tour, invites all interested members and guests of the Association to attend.

LUNCHEON AND FASHION SHOW

A luncheon, followed by a fashion show sponsored by Julius Garfinckel and Company, will be held at 12:30 P.M., Tuesday, October 16, in the Blue Room, Shoreham Hotel. Tickets will be $3.50 and attendance limited to 500 persons. Wives and guests of Association members who wish to attend should mail their requests and checks to Mrs. W. Lawrence Smallwood, chairman of the Women's Entertainment Committee, 4713 Merivale Road, Chevy Chase 15, Md. Tickets also will be on sale at the information centers at the meeting.

BLAIR HOUSE RECEPTION

The wives of officers and trustees of the Association and the members of the executive board of the Women's Auxiliary

of the District of Columbia Dental Society will be guests of Mrs. Harry S. Truman at the Blair House for a reception and tea on Tuesday, October 9, at 4:00 P.M. Wives of Association officers who desire to attend this reception are requested to notify Mrs. W. Lawrence Smallwood, chairman of the Ladies Entertainment Committee, 4713 Merivale Road, Chevy Chase 15, Md., prior to September 25, 1951.

ANNAPOLIS PRECONVENTION TRIP

A trip to the U. S. Naval Academy at Annapolis, Md., on Wednesday, October 10, is planned for the wives of Association officers and trustees. A dutch treat luncheon will be served, either in the Officers' Club of the Naval Academy or in the famous Carvel Hall.

ALUMNI BREAKFASTS

Loyola • The alumni of Loyola University School of Dentistry, Chicago College of Dental Surgery, will hold a breakfast meeting at the Carlton Hotel on Tuesday, October 16, at 8:00 A.M. All alumni of the school are invited to attend.

Baltimore • The alumni of the Baltimore College of Dental Surgery, Dental School, University of Maryland, plan a breakfast meeting on Wednesday morning, October 17 at 8:30 A.M. in the Williamsburg Room, Mayflower Hotel.

SIGHTSEEING TOURS

The Gray Line, Washington's leading sightseeing company, will give a substantial reduction for sightseeing tours to members and guests registered at the meeting, provided tickets for the tours are purchased at the Gray Line desk at the Armory.

TOUR OF FEDERAL GOVERNMENT DENTAL AGENCIES

An extensive tour of the U. S. Army Medical Center, the National Naval Medical Center, the National Institutes of Health and the U. S. Bureau of Standards will be held on Monday, October 15. This tour, which will start and end at the Statler Hotel, is open to all members of the Association. Method of transportation will be announced later.

SYMPHONY CONCERT

A symphony orchestra concert conducted by Henry Goldstein and featuring Irving Owen, piano soloist, will be held in the Presidential Room of the Hotel Statler on Monday evening, October 15. Sponsored by the District of Columbia Dental Society this evening's musical entertainment is open to all members and guests of the Association.

MEMORIAL SERVICES

Memorial services will be held at the Tomb of the Unknown Soldier in Arlington National Cemetery at 4:00 P.M. on Tuesday, October 16. All members and guests of the Association are invited to attend these services which have been arranged in cooperation with the Department of the Army and the Military District of Washington, D. C.

House of Delegates

Phillips, Percy T., 18 East 48th Street, New York, speaker
Hillenbrand, Harold, 222 East Superior Street, Chicago, secretary

Ex-officio members

Oppice, Harold W., 1002 West Wilson Avenue, Chicago, president
Ennis, LeRoy M., 4001 Spruce Street, Philadelphia, president-elect
White, Edward R., 921 Bergen Avenue, Jersey City, N. J., first vice-president
Chandler, Alfred W., Bureau of Medicine and Surgery, Navy Department, Washington, D.C., second vice-president
Jarrell, M. F., Box 1986, Alexandria, La., third vice-president

Trustees

Burns, William McGill, 80 Hanson Place, Brooklyn
Carr, J. B., Hume Mansur Building, Indianapolis
Craig, W. Earle, 8113 Jenkins Arcade, Pittsburgh
Dalgleish, R. C., State Capitol, Salt Lake City
Foster, C. S., Dows Building, Cedar Rapids, Iowa
Jacob, L. H., Jefferson Building, Peoria, Ill.
John, James E., Medical Arts Building, Roanoke, Va.
Lynch, Daniel F., 1678 Primrose Road, Washington, D.C.
Moen, Obed H., Watertown, Wis.
Ogle, Willard, 3607 Gaston Avenue, Medical Building, Dallas, Texas
Shandley, Fred S., Medical and Dental Building, Seattle
Taggart, Charles I., 139 Bank Street, Burlington, Vt.
Thomas, Robert P., Francis Building, Louisville, Ky.

Past Presidents

Brown, Homer C., 1816 Franklin Avenue, Columbus
Hartzell, Thomas B., 2508 Pillsbury Avenue, Minneapolis
Volland, Roscoe H., First National Bank Building, Iowa City
Casto, Frank M., 801 Silverado Street, La Jolla, Calif.
Miner, LeRoy M. S., 363 Marlborough Street, Boston
Camalier, C. Willard, 1726 Eye Street, N.W., Washington, D. C.
Ward, Marcus L., 1308 Cambridge Road, Ann Arbor, Mich.
*Merritt, Arthur H., 580 Fifth Avenue, New York
*Oliver, Oren A., 1915 Broadway, Nashville, Tenn.
*Robinson, J. Ben, 618 West Lombard, Baltimore
*Wells, C. Raymond, One DeKalb Avenue, Brooklyn
Mead, Sterling V., 1149 16th Street, N.W., Washington, D.C.
Washburn, Harvey B., 488 Lowry Medical Arts Building, St. Paul
Minges, Clyde E., Peoples Bank Building, Rocky Mount, N.C.
Adams, Philip E., 106 Marlborough Street, Boston

*Serving as an elected delegate.

Members

AIR FORCE

Delegate

Sitzman, Col. John K., USAF (DC), Chief, Professional Branch, Dental Division, Office of the Surgeon General, Hqs, USAF, Washington 25, D.C.

Alternate Delegate

Kennebeck, Maj. Gen. George R., USAF (DC), Chief of Dental Division, Office of the Surgeon General, Hqs, U.S. Air Force, Washington 25, D.C.

ALABAMA

Delegates

McKinnon, H. T., Jr., Troy
Goodwin, W. E., 309 1st National Bank Building, Montgomery
Kirkland, Olin, 722 Shepherd Building, Montgomery
Llewellyn, M. L., Phillipson Building, Gadsden

Alternate Delegates

McGavock, R. J., 914 Woodward Building, Birmingham
Strong, L. B., Jr., 2911½ North 27th Street, Birmingham
Wood, W. A., 1508 Merchants Bank Building, Mobile
Dillon, L. B., Woodward Building, Birmingham

ALASKA

Delegate

Livie, Robert D., Anchorage

Alternate Delegate

McKinley, Lee L., Anchorage

ARIZONA

Delegates

Scott, Edward M., 15 East Monroe, Phoenix
Trueblood, Roger K., 25 North Second Avenue, Glendale

Alternate Delegates

Lane, Jack N., 15 East Monroe, Phoenix
Bennett, Paul H., 4 East Congress, Tucson

ARKANSAS

Delegates

Bucy, Roy, Rector
Hamm, Don, White Building, Clarksville
Alstadt, W. R., 610 Boyle Building, Little Rock

Alternate Delegates

Hardage, Paul, Arkadelphia
Smith, Thermon B., 610 Boyle Building, Little Rock
Golden, Roy, Arkadelphia

ARMY

Delegate

Harper, Neal A., Walter Reed Army Hospital, Washington 12, D.C.

Alternate Delegate

Ogren, Oscar J., Fort Belvoir, Virginia

CALIFORNIA

Delegates

Hicok, E. L., 348 Market Street, Colusa
Benediktson, John B., 1624 Franklin Street, Oakland
Schraft, Robert O., 450 Sutter Street, San Francisco
Ludwigsen, Lawrence R., 450 Sutter Street, San Francisco
Sloman, Ernest G., 344 Fourteenth Street, San Francisco
Petray, Henry C., 1904 Franklin Street, Oakland
McKeehan, C. Porter, 1805 Park Boulevard, Oakland
Ropes, Edwin J., Medico-Dental Building, Woodlake
Marsh, Raymond H., P.O. Box 387, Williams
Ryder, William B., Jr., 2000 Van Ness Avenue, San Francisco
Epstein, Sidney, 516 Sutter Street, San Francisco
Soderstrom, Ernest F., Beaty Building, Modesto
Blanquie, Raoul H., 1624 Franklin Street, Oakland

Alternate Delegates

Love, Edward L., 145 East Fourth Street, Pittsburg, California
Kingsbury, Bernerd C., Sr., 490 Post Street, San Francisco
Sweet, Charles A., Sr., 344 Fourteenth Street, San Francisco
Jensen, Arthur L., 2240 Channing Way, Berkeley

SOUTHERN CALIFORNIA

Delegates

Monia, Walter J., 329 North Wetherly Drive, Beverly Hills
Moss, C. Albert, 1401 South Hope Street, Los Angeles
Tennis, Phillip J., 3875 Wilshire Boulevard, Los Angeles
Harding, J. C. A., 311 Nutmeg Street, San Diego
Paul, Cassius, 411 Moore Building, Santa Ana
Abel, John R., 405 North Bedford Drive, Beverly Hills
Kurtz, Bruce R., 960 East Green Street, Pasadena
Steen, John F., 2290 6th Avenue, San Diego
James, Allison G., 409 North Camden Drive, Beverly Hills
Ralston, Melvin E., Medico-Dental Building, Pomona
Wilson, John B., 5225 Wilshire Boulevard, Los Angeles
Rounds, Jack, 3875 Wilshire Boulevard, Los Angeles
Tylicki, B. M., 547 East Broadway, Long Beach
Kulstad, Hugo M., 555 Phelan Building, 760 Market Street, San Francisco
Saunders, A. E., 809 Security Building, Long Beach

Alternate Delegates

Hales, Lock, 229 North Central Avenue, Glendale
Ingraham, Rex, 6253 Hollywood Boulevard, Hollywood
Openshaw, David Lynn, 1126 Roosevelt Building, Los Angeles
Olds, Fred B., 727 West Seventh Street, Los Angeles
Neblett, W. Stuart, 3705 Main Street, Riverside
Hill, Paul K., 403 First Trust Building, Pasadena
Strang, Douglas, 3875 Wilshire Boulevard, Los Angeles
Morris, Harold H., 3942 East Fourth Street, Long Beach
Williams, Carlton H., 1963 Fourth Avenue, San Diego
Woodward, Charles, 960 East Green Street, Pasadena
McNeil, Murray T., 1401 South Hope Street, Los Angeles
Skinner, C. N., Bank of America Building, Whittier
Jones, Howard V., 6114 Franklin Ave., Los Angeles
Pincus, Charles L., 9629 Brighton Way, Beverly Hills
Vieille, Albert C., 3780 Wilshire Boulevard, Los Angeles
Bowers, James, 124 West Lime, Monrovia

COLORADO

Delegates

Johnston, Lloyd W., 1108 Republic Building, Denver
Jones, Guy E., U. S. Bank Building, Grand Junction
Proctor, Hobart H., 412 Metropolitan Building, Denver
Tidwell, Reuben Bruce, 936 Metropolitan Building, Denver

Alternate Delegates

Anderson, Lorin L., Loveland
Maier, Rolla R., 1123 Republic Building, Denver
Peterson, Fred A., 1477 Penn Street, Denver
Ritchey, Beryl, 629 North Nevada Avenue, Colorado Springs

CONNECTICUT

Delegates

Beebe, Ira Dow, 886 Main Street, Bridgeport
MacDonald, Alan L., 302 State Street, New London
Chernoff, Phillip M., 154 Broad Street, Middletown
Arnold, Earle S., 37 Linnard Road, West Hartford
Monks, Leon C., 781 Chapel Street, New Haven
Gillroy, Kenneth M., 77 South Street, Stamford
Gengras, Alfred J., Jr., 750 Main Street, Hartford

Alternate Delegates

Peterson, Clarence E., 9 Elm Street, Rockville
Bray, Joseph A., 15 Grennan Road, West Hartford
Harold, Frederic S., 291 Whitney Avenue, New Haven
Hicks, Henry, 5 Glen Court, Greenwich
Englander, Jesse J., 76 John Street, Bridgeport
Miller, Howard W., 111 West Main Street, Waterbury
Gaynor, Joseph M., 462 Howe Avenue, Shelton

DELAWARE

Delegates

Musselman, Paul, Newark, Delaware
Maguire, John, 1200 North Van Buren Street, Wilmington

Alternate Delegates

Nelson, Clyde, Milford
Cox, Clyde, Newark, Delaware

DISTRICT OF COLUMBIA

Delegates

Brown, James W., Sr., 1726 Eye Street, N. W., Washington
Burke, John P., Colorado Building, Washington
Leifer, Edward D., Colorado Building, Washington
Fitzgibbon, David J., 601 19th Street, N. W., Washington

Alternate Delegates

Michaels, Manly, 915 19th Street, N. W., Washington
Hogan, John R., 1726 Eye Street, N. W., Washington
Lamb, Roscoe G., 1029 Vermont Avenue, N. W., Washington
Weakley, A. D., 1726 Eye Street, N. W., Washington

FLORIDA

Delegates

Morrison, Donald, Sr., Florida Theatre Building, Gainesville
Todd, John I., 433 St. James Building, Jacksonville
Schulstad, L. M., 601 Professional Building, Bradenton
Fillastre, Alvin J., 200-6 Professional Building, Lakeland
Kellner, A. W., P. O. Box 155, Hollywood

Alternate Delegates

Thoburn, Robert, 227 Orange Avenue, Daytona Beach
Cleveland, C. P., 410 St. James Building, Jacksonville
Wilson, Byron G., 1700 MacDill Avenue, Tampa
Thompson, E. L., Sr., 326½ South Beach Street, Daytona Beach
Price, Thomas A., 808 Congress Building, Miami

GEORGIA

Delegates

Eisenberg, Semon, 302 Bull Street, Savannah
Banks, W. H., Montezuma
Tuck, A. C., Thomasville
Garrett, W. A., 833 Candler Building, Atlanta

Alternate Delegates

Garrett, Steve A., 384 Peachtree Street, N.E., Atlanta
Maxwell, Vaughn, 623 Greene Street, Augusta
Yarbrough, C. A., Bibb Building, Macon
Johnston, Charles L., 201 Galt Building, Canton

HAWAII

Delegates

Nishimura, Hideichi, 10-11 Young Building, Hilo
Kubo, Masao, P. O. Box 1166, Hilo

IDAHO

Delegates

Packard, Herbert R., 540 Park Avenue, Idaho Falls
McAtee, Frank J., McAtee Building, Twin Falls

Alternate Delegate

Klaaren, H. M., Breier Building, Lewiston

ILLINOIS

Delegates

Gonwa, Walter J., Chrisman
Zinser, Melford E., 55 East Washington Street, Chicago
Clopper, Paul W., 623 Jefferson Building, Peoria
Gresens, Werner J., 1011 Lake Street, Oak Park
Baumann, Edwin W., 108 North Evergreen Avenue, Arlington Heights
Cartwright, Glenn E., 4000 West North Avenue, Chicago
Ebert, Elmer, 10053 Ewing Avenue, Chicago
Hax, George W., 8 South Michigan Avenue, Chicago
Keith, James H., 636 Church Street, Evanston
Kleiman, S. R., 2348 North Western Avenue, Chicago
Luebke, E. W., 3166 Lincoln Avenue, Chicago
Placek, B., 1545 West Division Street, Chicago
Starshak, T. C., 753 East 79th Street, Chicago
Tolar, William F., 6804 Windsor Avenue, Berwyn
Wenger, Herman R., 5601 West Irving Park Road, Chicago
Dodd, Lloyd H., 860 Citizens Building, Decatur
Fitz, G. Herbert, Sterry Block, Pontiac

Graham, F. W., Jr., 822 West Fremont Avenue, Morris
Green, John W., 805 First National Bank Building, Springfield
Helpenstell, Fred M., Cleveland Building, Rock Island
Hoag, E. E., 511 Central National Bank Building, Peoria
Layman, Howard S., 702 Ridgely Building, Springfield
Mahoney, James E., Wood River
Squires, R. E., Piper City
Streed, W. R., 302 Reliance Building, Moline

Alternate Delegates

Baughman, D. C., P. O. Box 29, Mattoon
Schoen, Wm. P., Jr., 6355 Broadway, Chicago
Hindman, H. A., 412 Robeson Building, Champaign
Riemer, Robert V., 55 E. Washington Street, Chicago
Lindholm, Eric R., 8200 Oglesby Avenue, Chicago
Couch, M. J., 55 East Washington Street, Chicago
DeRose, Michael, 3643 Chicago Avenue, Chicago
Dundon, Walter E., 111 North Wabash Avenue, Chicago
Wells, Robert J., 1525 East 53rd Street, Chicago
Cupis, Basil A., 4554 Broadway, Chicago
Aseltine, Lyle F., 55 East Washington Street, Chicago
Mayer, William E., 636 Church Street, Evanston
Kremer, Leo W., 55 East Washington Street, Chicago
Kanchier, Paul, 9300 Cottage Grove Avenue, Chicago
Solfronk, G. W., 3125 West 63rd Street, Chicago
Berryhill, Paul B., 874 Citizens Building, Decatur
Chrisman, E. W., 710 North East Street, Bloomington
Kartheiser, P. J., 502 Graham Building, Aurora
Bradley, Ross H., 503 Farmers Bank Building, Jacksonville
Marquis, Donald T., Aledo State Bank Building, Aledo
Becherer, C. K., 223 East Washington Street, East Peoria
Lumbattis, M. M., 428 Rogers Building, Mt. Vernon
Winkler, Theo. J., 116 East Main Street, Belleville
Burt, Holmes C., 12 Neustadt Building, LaSalle
Servine, J. S., 501 15th Street, Moline

INDIANA

Delegates

McNulty, Wilbur P., 3501 South Harrison Street, Fort Wayne
Baker, Frederick C., 508 Calumet Building, Hammond
Ewbank, E. E., Box 96, Kingman
Asher, Paul H., 3801 Broadway, Gary
Hine, Maynard K., 1121 West Michigan Street, Indianapolis
Montgomery, E. A. W., 1006 Hulman Building, Evansville
Berkey, H. T., 408 Wayne Pharmacal Building, Fort Wayne
Griswold, J. H., 218 Medical Arts Building, Richmond, Indiana

Alternate Delegates

Carr, Guthrie P., 40 Loan and Trust Building, Lafayette
Beeson, John H., 103½ North Washington Street, Crawfordsville
Risk, Paul A., 401 Schultz Building, Lafayette
Leavell, Fred W., 326 Burr Building, New Castle
O'Halloran, Frank H., 410 Hulman Building, Evansville
Jones, Chester W., 716 Anderson Bank and Trust Company Building, Anderson
Hall, J. Frank, 445 North Pennsylvania Street, #801, Indianapolis
Smiley, T. Charles, 301 Peoples Bank and Trust Building, Washington

IOWA

Delegates

Hoffman, Karl R., Heise Building, Algona
Pillars, Floyd W., 808 Equitable Building, Des Moines
Stonebrook, H. W., Eldora
Humiston, A. N., 409 Higley Building, Cedar Rapids
Anderson, Glenn C., Avoca
Foster, John E., Hampton
Goen, D. J., Manchester

Alternate Delegates

Altfillisch, H. J., 722 Roshek Building, Dubuque
Bolks, Harry G., 923 Badgerow Building, Sioux City
Scott, W. L., Iowa State Savings Bank Building, Clinton
FitzGerald, D. J., 615-16 Foresters Building, Mason City

Norman, R. C., Guthrie Center
Eaton, E. M., 1011 American Trust Building, Cedar Rapids
Coles, F. V., Mount Pleasant

KANSAS

Delegates

Buff, Arthur J., Mills Building, Topeka
Richmond, Fred A., 861 Brotherhood Building, Kansas City
Robison, Homer B., Wiley Building, Hutchinson
Stalker, Clinton L., Mills Building, Topeka

Alternate Delegates

Carothers, Frank C., Garnett
Bunker, Herbert L., Junction City
Lucas, J. Wesley, First National Bank Building, Wichita
Teall, Gordon L., Hiawatha

KENTUCKY

Delegates

Coxwell, A. B., 1976 Douglass Boulevard, Louisville
Elam, A. M., 309 Citizens Bank Building, Lexington
Walker, J. L., 640 Barbee Way, South, Louisville
Wilson, Morris J., 305 College Street, Greenville
Wilson, O. D., Masonic Building, Owensboro

Alternate Delegates

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Bach, M. T., 300 East 3rd Street, Newport
Prewitt, George H., 504 Bank of Commerce, Lexington
Vogt, F. S., 1903 Bardstown Road, Louisville
Willis, E. A., 115 East 4th Street, Owensboro

LOUISIANA

Delegates

Earnest, J. C., Bernhardt Building, Monroe
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Smith, Alfred E., 1936 South Carrollton Avenue, New Orleans

Alternate Delegates

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Wolfe, F. J., Sr., Maison Blanche Building, New Orleans
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MAINE

Delegates

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Maxfield, Carl, 31 Central, Bangor
Appleby, Alva, Skowhegan

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Derbyshire, Raymond, Skowhegan
Peaslee, Edward, Augusta

MARYLAND

Delegates

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Shehan, Daniel E., Medical Arts Building, Baltimore
Inman, Conrad L., Sr., Medical Arts Building, Baltimore
Bell, Arthur I., Medical Arts Building, Baltimore

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Conner, Harold H., 7930 Georgia Avenue, Silver Springs
Eggnatz, Meyer, Medical Arts Building, Baltimore

MASSACHUSETTS

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Thoma, Kurt H., 1180 Beacon Street, Brookline
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McCarty, Daniel J., 445 Broadway, Chelsea
Wilder, Frederick C., 28 Central Street, Ipswich
Grossman, Maurice F., 301 Essex Street, Lawrence
Bates, Francis C., 453 Adams Street, Milton
Briggs, Walter E., Bates Block, Attleboro

Kepnes, Benjamin, 344 Main Street, Hyannis
Maycock, James H., 332 Main Street, Worcester
Sullivan, Charles G., 184 North Street, Pittsfield
Cheney, J. Edward, 717 Main Street, Fitchburg

Alternate Delegates

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Canavan, William H., 47 Bay State Road, Boston
Moran, John F., 44 Vernon Street, Springfield
Dempsey, Peter A., 56 Melville Avenue, Dorchester
Whalen, Walter A., Hotel Touraine, Boston
Bommer, Arno M., 349 Broadway, Revere
Keach, Frederick P., 219 Essex Street, Salem
Mahoney, John P., 9 Central Street, Lowell
Ludlow, Clarence E., 857 Washington Street, South Braintree
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Kennedy, Walter J., 43 Pleasant Street, Hyannis
Brown, George Cowles, 332 Main Street, Worcester
Ahern, Wendell G., 18 Bank Row, Pittsfield
Channing, Raymond E., 745 Main Street, Fitchburg

MICHIGAN

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Brooks, Glenn R., First National Bank Building, Rochester
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Donnelly, Andrew J., 406 Muskegon Building, Muskegon
Short, J. Robert, 703 Kalamazoo Bank Building, Kalamazoo
Walmoth, Raymond W., 28 West Adams Avenue, Room 901, Detroit
Teal, Douglas M., 1 Mechanic Street, Yale
Wright, J. Kent, 201 State Bank Building, Traverse City
Hart, Raymond A., 427 North Michigan Avenue, Saginaw
Klinesteker, Russel A., 216 Metz Building, Grand Rapids

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Burkman, N. Weir, 213 Wabeek Building, Birmingham, Michigan
Champagne, Joseph L., 3714 West McNichols Road, Detroit
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Eman, Vernor H., 622 Medical Arts Building, Grand Rapids
Jamieson, Charles H., 563 David Whitney Building, Detroit
Jeserich, Paul H., 5145 Pontiac Road, Ann Arbor
Matson, Charles H., 409 Dryden Building, Flint
Parks, Harry F., 1206 Reynolds Building, Jackson
Rochon, Rene O., 630 East Jefferson Avenue, Detroit
Wright, Clarence J., 802 American State Bank Building, Lansing

MINNESOTA

Delegates

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Cassel, C. V. E., 242 Lowry Building, St. Paul
Lusk, M. E., 1827 Medical Arts Building, Minneapolis
Walls, M. G., 1470 Lowry Building, St. Paul
Ernst, M. E., 1250 Lowry Building, St. Paul
Mackay, D. R., 925 Lowry Building, St. Paul
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Hyde, Walter, 434 LaSalle Building, Minneapolis
Sheridan, G. D., Winona

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Bang, C. D., Fertile

Girvin, C. W., Mankato
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Larson, G. Edward, St. Peter

MISSISSIPPI

Delegates

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Leggett, T. Ford, Laurel

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Williams, C. S., Jr., Hattiesburg
Abbott, Rush P., West Point

MISSOURI

Delegates

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Main, Lee Roy, 3556 Caroline Street, St. Louis
Clipner, George, 4500 Olive Street, St. Louis
Rode, Ralph, 519 Frisco Building, St. Louis
Rosen, Ralph, 1006 Paul Brown Building, St. Louis
Porter, C. G., 255 Plaza Bank Building, Kansas City
White, W. W., 6333 Brookside Plaza, Kansas City

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Shale, C. R., Macon
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Thompson, Cornelia, 101 South Meramec, Clayton
Jones, Arthur H., 1018 Paul Brown Building, St. Louis
Bollwerk, Emil H., 3606 Gravois Avenue, St. Louis
Chimienti, John F., 1108 East 10th Street, Kansas City
Rinehart, R. J., 1108 East Tenth Street, Kansas City

MONTANA

Delegates

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Renouard, C. S., 304 Phoenix Building, Butte

Alternate Delegates

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Beveridge, Charles D., Hart-Albin Building, Billings

NAVY

Delegate

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Alternate Delegate

Mitchell, Louis D., Jr., (DC) USN, Commanding Officer, Naval Dental School, National Naval Medical Center, Bethesda

NEBRASKA

Delegates

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Paynter, F. L., 607 Medical Arts Building, Omaha
Lillibridge, C. C., Crete
Pierson, F. A., 1112 Federal Securities Building, Lincoln

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Honsa, S. J., 624 City National Bank Building, Omaha
Johnston, G. R., 1024 Stuart Building, Lincoln
Baker, C. E., David City
Sittler, W. G., Gordon

NEVADA

Delegate

Steinmiller, G. C., Masonic Building, Reno

Alternate Delegate

Cafferata, Harold, 1st National Bank Building, Reno

NEW HAMPSHIRE

Delegates

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Stuart, William F., 19 Pleasant Street, Claremont

Alternate Delegates

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Marion, George O., 211 Main Street, Nashua

NEW JERSEY

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Jennings, Edward J., 126 West State Street, Trenton
Westcott, E. R., 1500 Pacific Avenue, Atlantic City
Nelson, Alfred W., 196 The Plaza, West Englewood
Lyons, Stephen M., 382 Springfield Avenue, Summit
Giblin, William, 85 Park Street, Montclair
Lentz, Maxwell J., 655 Main Avenue, Passaic
Barry, Walter F., Jr., 23 Green Village Road, Madison
Quirk, Pierce A., 921 Bergen Avenue, Jersey City
Newman, Eugene W., 16 Wallace Street, Red Bank
Galdieri, D. J., Park Square Building, Morristown
White, Edward R., 921 Bergen Avenue, Jersey City
Gindin, Jac P., 280 Hobart Street, Perth Amboy
Saporito, Louis A., 15 Washington Street, Newark
Owens, John S., 407 Cooper Street, Camden

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Sussman, Rudolph, 1139 East Jersey Street, Elizabeth
Paul, Frank, 148 Central Avenue, Montclair
Friedrich, Rudolph, 960 Park Avenue, Plainfield
Hillman, Guy H. (deceased), 525 Park Avenue, Plainfield
Rosenwasser, Ben, 4809 Bergenline Avenue, Union City
Campi, John G., Medical Arts Building, Asbury Park
Gindes, Jack J., 45 Washington Street, Morristown
Weaver, J. Ward, 47 South Main Street, Pleasantville
Levy, Milton, 18 Hamilton Street, Bound Brook
Crowe, Charles P., 521 Main Street, East Orange
White, George J., 12 Broad Street, Riverton

NEW MEXICO

Delegates

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Eilar, J. S., Medical Arts Square, Albuquerque

Alternate Delegates

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Berardinelli, M. V., Santa Fe

NEW YORK

Delegates

Miller, Donald H., 109 Walnut Street, Elmira
Bell, Willard S., 118-02 Rockaway Boulevard, Ozone Park
Roohan, Leo W., 360 Broadway, Saratoga
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Back, Philip, 237 Willis Avenue, New York
Brophy, Frederick H., 200 West 59th Street, New York
Chase, Oscar J., 140 East 54th Street, New York
Clug, Bernard, 17 Park Avenue, New York
Eisner, Samuel, 853 Broadway, New York
Isaacson, Samuel A., 501 Madison Avenue, New York
Merritt, Arthur H., 580 Fifth Avenue, New York
Mork, Waldo H., 501 Madison Avenue, New York
Morse, Roland E., 14 West 49th Street, New York
Phillips, Percy T., 18 East 48th Street, New York
Schuyler, Clyde H., 400 Madison Avenue, New York
Feinman, Jacob, 25 Forest Avenue, Staten Island
Frahm, Gustav P., 35-71 162nd Street, Flushing
Heinze, Robert L., One Hanson Place, Brooklyn
Kohn, Leonard, 332 New York Avenue, Brooklyn
Stolzenberg, Jacob, 1 Nevins Street, Brooklyn
Wagner, Adolph G., 542 Rogers Avenue, Brooklyn
Wells, C. Raymond, 1 DeKalb Avenue, Brooklyn
Carter, John H., 143 Mohawk Street, Cohoes
Gale, E. Harold, 142 Washington Street, Albany

Krueger, Ralph F., 22 Jay Street, Schenectady
Eger, William R., 947 Albany Street, Schenectady
Jutton, Daniel, State Tower Building, Syracuse
Crysler, Earle M., 185 Stone Street, Watertown
Cullen, T. R., 189 West First Street, Oswego
Cross, Arthur A., Seneca Building, Ithaca
Stanton, William G., 215 East State Street, Ithaca
Pammenter, Elmer J., 92 Pine Grove Avenue, Rochester
Burns, Gerald G., Stony Wold Sanitorium, Lake Kushaqua
Blutau, Theodore C., 89 East Avenue, Rochester
Conn, Robert W., 4525 Main Street, Snyder
Galvin, Edward J., 1417 Hertel Avenue, Buffalo
Pankow, Charles A., 902 Main Street, Buffalo
Zillmann, Paul W., 29 Walden Avenue, Buffalo
Gugino, Anthony S., 333 Linwood Avenue, Buffalo
Goldstein, Max, 81 Centre Avenue, New Rochelle
Berkey, L. Gordon, 1124 Main Street, Peekskill
Squires, Franklin A., 170 Maple Avenue, White Plains
Morris, J. Harold, Hudson River State Hospital, Poughkeepsie
Snell, Frank S., 81 East Main Street, Patchogue
Bisnoff, Harry L., 89-21 153rd Street, Jamaica
Gordon, Leo, 2 West Park Avenue, Long Beach
Grindlinger, Paul, 119-04 80th Road, Kew Gardens
Hoffman, Samuel G., 91 Fulton Avenue, Hempstead
Morse, Arthur, 111-19 103rd Avenue, Richmond Hill

Alternate Delegates

Bastian, Carlisle C., 22 West 59th Street, New York
Fennelly, William A., 33 West 42nd Street, New York
Harris, Philip N., 595 Madison Avenue, New York
McHugh, Francis X., 576 Fifth Avenue, New York
Reisman, Harry, 40 Monroe Street, New York
Riesner, Sidney E., 136 East 36th Street, New York
Strusser, Harry, 919 Flatiron Building, New York
Teich, Isidore, 535 Fifth Avenue, New York
VanValey, E. G., 38 East 61st Street, New York
Abeloff, A. J., 8638 Bay Parkway, Brooklyn
Besdine, Matthew, 1182 Dean Street, Brooklyn
Blumenthal, Emanuel E., One Hanson Place, Brooklyn
Glaser, Joseph M., 89-19 146th Street, Jamaica
Pearson, Thomas H., 151 Richmond Avenue, Staten Island
Schure, Joseph, One Hanson Place, Brooklyn
Standard, Stanley G., 225 West 34th Street, New York
Meinhardt, Harry, Box 755, Kingston
Schick, Edgar, 121 North Pearl Street, Albany
Rowland, John F., 384 Broadway, Saratoga Springs
Harrington, E. I., Woolworth Building, Watertown
Crandall, Howard, 58 West Bridge Street, Oswego
Lodico, Louis J., 148 West Water Street, Elmira
Gregory, Clifford C., 53-57 Chestnut Street, Oneonta
Bowman, Harold D., 89 East Avenue, Rochester
Gray, Willard A., 277 Alexander Street, Rochester
McKinnon, Malcolm J., 1058 Sibley Tower Building, Rochester
Claflin, Leonard M., Bolivar
Gavin, John R., 216 Exchange Bank, Olean
Thomas, Thomas W., 35 North Main Street, Warsaw
Scalzo, Anthony J., 11 Clinton Building, Lockport
Burr, LeRoy E., 27 Ludlow Street, Yonkers
Eaton, Leonard J., 115 Park Avenue, Mt. Vernon
Flynn, John T., Harwood Building, Scarsdale
Murphy, William J., 151 Park Avenue, Mt. Vernon
Andrews, John, Hempstead Bank Building, Hempstead
Hoffman, Arthur J., 199-16 111th Avenue, St. Albans
Lazarus, C. H., 103 Main Street, Northport
Morris, Ralph, 62 East Main Street, Bay Shore
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Tardea, Raphael, 131 Fulton Avenue, Hempstead

NORTH CAROLINA

Delegates

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Lineberger, H. O., 804 Professional Building, Raleigh
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Alternate Delegates

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Alford, Frank O., 1109 Liberty Life Building, Charlotte
Poindexter, Charles C., 310 Jefferson Building, Greensboro
Kiser, J. Donald, 1209 Liberty Life Building, Charlotte
Eatman, Charles D., 212 Peoples Bank Building, Rocky Mount

NORTH DAKOTA

Delegates

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Alternate Delegate

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OHIO

Delegates

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McDermott, T. J., 821 Rose Building, Cleveland
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Bach, E. N., 308 Professional Building, Toledo
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Mills, E. C., 220 South Cassady Avenue, Columbus
Creig, R. E., 10465 Carnegie Avenue, Cleveland
Postle, W. D., 1714 North High Street, Columbus
Hebble, C. H., 327 East State Street, Columbus
Jones, E. G., 185 East State Street, Columbus
Steffel, V. L., 19 West Fifth Avenue, Columbus
Harkrader, R. C., 1010 Union Central Building, Cincinnati
Pryor, W. J., 1020 Rose Building, Cleveland
Sterling, W. J., 6412 Lorain Avenue, Cleveland
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Alternate Delegates

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Black, F. W., 835 Doctors Building, Cincinnati
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Aufderheide, P. J., 946 Rose Building, Cleveland
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Connor, P. L., Stambaugh Building, Youngstown
Stricker, C. H., Doctors Building, Cincinnati
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Geurink, H. J., 858 Rose Building, Cleveland
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OKLAHOMA

Delegates

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Warrick, H. O., 602 Broadway Tower, Enid
Reichmann, F. J., 514 Medical Arts Building, Oklahoma City
Bonnell, A. E., Jr., Surety Building, Muskogee

Alternate Delegates

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Matteson, David W., 562 First National Building, Oklahoma City
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OREGON

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George, Chalmer Lee, Medical Dental Building, Portland
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PENNSYLVANIA

Delegates

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Bomberger, Paul E., 116 East Chestnut Street, Lancaster
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Ventura, Al L., 1201 DeKalb Street, Norristown
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Reichard, Harry C., Riant Theater Building, Conshohocken
Gatusky, Charles R., 46 South Washington Street, Wilkes-Barre
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Bonebreak, J. Keim, East Allegheny Street, Martinsburg
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Gardner, Harry D., 37 Fraley Street, Kane
McFate, Thomas J., Sr., 311 Centennial Building, New Castle
Flint, Wilson R., 8047 Jenkins Arcade, Pittsburgh
Nicholson, Milton E., 609 Shields Building, Wilkinsburg
Swanson, William F., 5326 Pocussett Street, Pittsburgh
Boyle, John O., First National Bank Building, Youngwood
Boucek, George P., 516 Federal Street, Pittsburgh
Lawson, Archibald S., 524 Federal Street, Pittsburgh

PUERTO RICO

Delegates

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Alternate Delegate

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RHODE ISLAND

Delegates

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Biderman, Morris L., 144 Westminster Street, Providence
Colgan, James F., 838 Newport Avenue, Pawtucket

Alternate Delegates

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Migliaccio, Nicholas G., 1467 Westminster Street, Providence
Sullivan, Allyn F., 171 Westminster Street, Providence

SOUTH CAROLINA

Delegates

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Douglass, John W., Jr., Woodside Building, Greenville
Hines, F. B., Hartsville

Alternate Delegates

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Macaulay, Neill, 1226 Pickens Street, Columbia
Salter, A. D., Clinton

SOUTH DAKOTA

Delegates

Elmen, Ernest W., Sioux Falls
Kimball, G. G., Mitchell

Alternate Delegates

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Bergh, I. G., Watertown

TENNESSEE

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Alternate Delegates

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Seeman, George F., 440 Doctor's Building, Nashville
Jennings, Clyde E., 866 South Cooper Street, Memphis
Alford, W. C., Medical Arts Building, Knoxville

TEXAS

Delegates

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Wilkinson, Bruce F., Citizens Bank Building, Tyler
Shaffer, O. J., First National Building, El Paso
Williams, P. E., Medical Arts Building, Dallas
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Rogers, R. L., Fisk Building, Amarillo
Murphey, Phelps J., 3702 Fairmount, Dallas
Seberg, Donald C., Medical-Dental Building, Corpus Christi
McMurray, C. A., Alexander Building, Ennis
Taylor, C. M., Esperson Building, Houston
McCall, W. B., Scott & White Hospital, Temple

Alternate Delegates

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O'Farrell, J. D., Medical Arts Building, Houston
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Wyrick, Walter, Texarkana National Bank Building, Texarkana
Clyde, Wylie, 504 South Spring Street, Tyler
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Waltmon, W. K., Marshall Building, Hearne
McRimmon, D. C., Medical Arts Building, Fort Worth
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U. S. PUBLIC HEALTH SERVICE

Delegate

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Alternate Delegate

Pelton, Walter J., Dental Director, Chief, Division of Dental Resources, U. S. Public Health Service, Washington 25, D. C.

UTAH

Delegates

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McBride, Bruce P., 1003 Medical Arts Building, Salt Lake City
Pincock, Douglas F., First Security Bank Building, Ogden

Alternate Delegates

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Nelson, Harold, 801 Center Street, Midvale
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VERMONT

Delegates

Bailey, Byron W., Bradford
Guthman, William P., Morrisville

Alternate Delegates

Jones, R. Leslie, White River Junction
Taggart, Charles I., 139 Bank Street, Burlington

VETERANS ADMINISTRATION

Delegate

Fauber, John E., Veterans Administration,

Vermont and H Street, N.W., Washington 25, D. C.

Alternate Delegate

East, Bion R., Veterans Administration, Vermont and H Street, N.W., Washington 25, D. C.

VIRGINIA

Delegates

Lyons, Harry, Medical College of Virginia, Richmond
Muir, N. F., Shenandoah Building, Roanoke
Stickley, R. P., 176 Norfolk Avenue, Lynchburg
Hodgkin, W. N., Warrenton
Haley, B. M., Warrenton

Alternate Delegates

Street, W. H., Medical Arts Building, Richmond
O'Keefe, John, Bank of Commerce Building, Norfolk
Gray, S. N., 110 South Columbus Avenue, Alexandria
Walton, L. J., Shenandoah Building, Roanoke
Richardson, W. N., Lynchburg

WASHINGTON

Delegates

Dingler, Fred J., 1502 Medical & Dental Building, Seattle
Walker, J. D., Chehalis
Flood, Clyde R., 1130 Medical & Dental Building, Seattle
McQuire, G. A., 719 Stimson Building, Seattle
Swanson, Harry G., Bremerton Trust & Savings Building, Bremerton
Moore, K. G., Paulsen Medical & Dental Building, Spokane
McCulloch, George, 307 South 12th Avenue, Yakima

Alternate Delegates

Brodersen, O. E., Medical & Dental Building, Spokane
Kessler, M. M., Medical & Dental Building, Seattle
Boyd, T. J., Kennewick
Severn, C. A., 403 South 11th Avenue, Yakima
Chipman, M. R., 1261 Paulsen Medical & Dental Building, Spokane

WEST VIRGINIA

Delegates

Cleek, Lawrence Dewey, 330 Medical Arts Building, Charleston
Singleton, Charles R., 534 Medical Arts Building, Charleston
Summers, Howard E., 1015 F.H.N.B. Building, Huntington

Alternate Delegates

Dixon, James W., Jr., Bank of Commerce Building, Charleston
Nicholson, Matthew H., Coal and Coke Building, Bluefield
Snider, Hansel H., Winchester Avenue, Moorefield

WISCONSIN

Delegates

Hardgrove, T. A., 104 South Main Street, Fond du Lac
Hansen, M. C., 420 Seventh Street, Racine
Martin, F. J., Medford
Sinkler, C. A., Minahan Building, Green Bay
Nelson, C. A., Amery
Tormey, W. C., 16 North Carroll Street, Madison
LeSage, G. A., 1320 Tower Avenue, Superior
Morgan, G. E., 2018 East North Avenue, Milwaukee
Bleier, H. R., 4177 North Oakland Avenue, Milwaukee
Dresen, O. M., 735 North Water Street, Milwaukee
Huber, W. F., 606 West Wisconsin Avenue, Milwaukee

Alternate Delegates

Spaeth, V. K., Chippewa Falls
Scribner, L. C., 419½ Main Street, Stevens Point
Mortell, J. F., Sr., 1st National Bank Building, Oshkosh
Calkins, E. D., 420 Seventh Street, Racine
Cavanaugh, M. G., 4630 West Burleigh Street, Milwaukee
Wendt, W. H., Tenney Building, Madison
Kelly, J. D., Rivoli Building, La Crosse
Bennett, Glenn, Wisconsin Rapids
Bull, F. A., 3887 North 18th Street, Milwaukee
Mason, R. A., 964 North 27th Street, Milwaukee

WYOMING

Delegates

Lane, J. T., North Side State Bank, Rock Springs
Drew, T. J., Capitol Building, Cheyenne

Alternate Delegates

Stebner, Charles M., 209 Grand Avenue, Laramie
Carpenter, C. H., O & S Building, Casper

International Correspondence

NEWS FROM GREAT BRITAIN

In its golden jubilee year, the Metropolitan Branch of the British Dental Association on July 2-6 was host for the annual general meeting of the Association, when dentists from all parts of the country and from overseas gathered in London for a full and varied program of scientific and social events.

New B.D.A. President • The choice of E. B. Dowsett, D.S.O., T.D., F.D.S., M.R.C.S.Eng., L.R.C.P., as president was a happy one. The B.D.A. is indebted to Mr. Dowsett for his untiring work, especially for his work during the past 13 years as honorary treasurer, an office which he this year relinquishes to Mr. Roper Hall at a time when the Association, because of his good management, is financially sounder than ever before.

Mr. Dowsett's name is probably one of the most familiar in dentistry in Great Britain, since he is the author of the "little green book" which dental students can be seen reading in streetcars and buses as they journey to and from dental school. The book, entitled *Notes on Dental Surgery,* offers the final year student a method of rapidly refreshing his memory of the subject. The disabled practitioners, and the widows and dependents of deceased practitioners also are indebted to him, since as the honorary treasurer of the Benevolent Fund of the Association, he, with his colleagues who administer it, has stimulated interest among dentists and kept up the revenues of the Fund.

Thus, our new president enters upon his term of office with the sincere good wishes of all sections of the profession.

Annual B.D.A. Meeting • Mr. Dowsett's year has opened auspiciously with a most successful meeting at which there was almost too much to do and to see: clinical at-homes at dental schools, oral surgery operating sessions at medical teaching hospitals, table demonstrations, new teaching films, and scientific papers and symposiums.

One of the memorable events was the presentation to Lilian Lindsay of her portrait, to mark her eightieth birthday. In accepting the gift, Mrs. Lindsay expressed her heartfelt thanks and recalled her early days in Edinburgh in the last decade of the nineteenth century, when she was the first woman dental student in Britain. She related the history of the B.D.A. library, in which she is now active as honorary librarian, and expressed her pride in being associated with so many distinguished women now taking a responsible part in the affairs of the profession. In another tribute to Mrs. Lindsay, who was president of the B.D.A. in 1946, Miss K. C. Smythe presented her with a cheque and a bouquet.

Speech by E. W. Fish • At the statutory general meeting, E. W. Fish was admitted as an honorary member and, in an acceptance speech, he, also, stated his pride in the dental profession in Britain. "Present day criticisms within and without the profession are few," he said. "The profession is advancing and great activity is going on behind the scenes, the fruits of which will soon be seen." Mr. Fish stated that the hopes of such men as Tomes, Underwood, Smith-Turner and the other founders of the B.D.A. are slowly and surely being realized, and cited the "particularly British relationship" with medicine and the valuable part that the Colleges of Surgeons are playing in encouraging postgraduate dentistry. The universities, too, are playing their part, he said, and reminded his audience that although 30 years ago no professor of dental surgery existed in Britain, 10 years later there was one, and today every university dental school has at least one professor and many more have more than one chair in dental subjects. He cited the valuable help given to academic dentistry by the Nuffield Foundation, and the fact that dentistry is represented on the University Grants Committee, which now makes specific allocations for dental schools from Government funds. He said that in whatever aspect of professional life the dental surgeon looked, he found degrees of progress which would have seemed incredible 20 years ago.

Howard Mummery Prize • The annual Howard Mummery Prize was awarded to H. F. Atkinson of Manchester for his contributions to dental pathology.

John Boyes

Washington News Letter

Congressional activity bearing directly or indirectly on dental affairs picked up somewhat in August but, even so, developments were more numerous in the Government's executive branch.

UNIVERSAL MILITARY TRAINING

On August 16 the National Security Training Commission conferred with a representative of the American Dental Association to obtain the profession's views and suggestions on the health aspects of a universal military training program, on which the Commission is preparing a report to Congress for transmittal in September. Appearing in behalf of the A.D.A. was R. H. Friedrich, chairman of the Council on Federal Dental Services.

PHYSICIANS' INCOMES

The Department of Commerce published findings of its survey of physicians' incomes in 1949, and the figures bear many similarities to the same department's report on dentists' incomes for 1948 which was published in January, 1950. Parallel conclusions, are, for example: City practitioners average less than those in smaller towns; those in independent practice earn one third more than salaried physicians; about 20 per cent had net incomes (before taxes) less than $3,000.

Points of contrast are as follows: American physicians' average net income was $11,058; dentists', $6,912 (former figures are for 1949, latter for 1948). During the respective years covered in the questionnaire surveys, only 3 per cent of the independent dentists practiced in partnerships, compared with about 14 per cent for physicians. Physicians were found to reach their peak in earning power between ages of 45 and 50; dentists, in the 40-44 age group.

"Unlike lawyers," says the latest report, "dentists have had lower median and mean net incomes than physicians throughout the 1929-49 period. However, whereas in 1929 the median income of nonsalaried physicians was only slightly higher than that of dentists, two decades later it was more than 50 per cent greater. Nonsalaried dentists advanced from a mean net income of $4,267 to one of $7,146, for a 67 per cent increase.

"In terms of mean net income, nonsalaried lawyers ($8,083) in 1949 ranked a poor second behind physicians ($11,744), while dentists ($7,146) ranked third. In terms of median net income, on the other hand, dentists ($6,140) were a poor second behind physicians ($9,561), with lawyers ($5,787) trailing dentists."

"Mean income" is simply the average; the term "median income" is that sum below which, and above which, half of all the income recipients fall.

INCOME TAX AND RETIREMENT SAVINGS

Apropos of professional incomes, considerable interest is being manifested in a proposal made recently by Sen. Irving M. Ives (R., N. Y.). Senator Ives has indicated that when Congress, some time in September, acts on a pending bill revising the tax structure to increase revenue, he will recommend initiation of a system permitting certain taxpayers to set aside as much as $7,500 annually, free from income taxation, against their retirement. Retirement age would be 60 but the accumulated funds could be withdrawn earlier in event of total and permanent disability. Eligible for participation would be persons belonging to bona fide professional, agricultural or labor organizations, regardless of whether they were covered by social security laws.

In August, the Senate Finance Committee met almost daily to consider and revise the tax bill as a whole. It may, if it chooses, adopt the Ives amendment, or the latter may be submitted during debate on the floor.

NATIONAL SICKNESS SURVEY

The Senate Labor and Public Welfare Committee plans to hold public hearings on a proposed national survey of sickness, tightened Federal control of prescription drugs and a few lesser matters. The drug bill in particular, legalizing oral prescriptions by physicians and dentists, may provide some excitement in view of bitter debate preceding its passage by the House early in August. As a result of protests by members of both parties that the bill would be "a handmaiden of socialized medicine" if powers of Federal Security Administrator Oscar R. Ewing were not curbed, the bill was passed with a restrictive amendment withholding authority to compile a list of drugs dispensable solely by prescription.

Sponsor of drug control reform in the Senate is Sen. Hubert H. Humphrey (D., Minn.), formerly a practicing pharmacist. He also is the author of a bill, now pending before Labor and Public Welfare Committee, setting up a Federal loan system to promote development of nonprofit, prepayment health plans. Consumer-controlled cooperatives would benefit particularly by the bill, which is worded so that associations offering dental as well as medical benefits would be eligible for Government financial assistance.

NAVY DENTAL CHIEF

On August 14, the House Armed Services Committee formally approved a bill to give the chief of the Dental Division in the Bureau of Medicine and Surgery, Navy Department, equality with his opposite numbers in the Army and Air Force, with reference to pay and retirement benefits.

FSA APPROPRIATIONS

At the close of the third week in August, Congressional action had not been completed on Federal Security Agency's appropriations bill for 1951-52; hence it was still uncertain what funds would be granted to Public Health Service for such activities as community water fluoridation, topical fluoridation demonstration programs and support of dental research in non-Federal institutions.

RESEARCH GRANTS

However, by virtue of a continuing resolution approved by Congress pending final action on the appropriations bill, the National Dental Research Institute—a component of USPHS—was authorized to award $179,878 in research grants to 19 universities, colleges and hospitals. Largest sums went to University of Chicago, $23,278; New York University, $25,034, and University of Pennsylvania, $12,602.

Applications now being received by the Institute for support of dental research will be screened at a meeting September 7 of the dental study section, to be held in suburban Bethesda, Md., at the National Institutes of Health. Their recommendations will be considered at the fall meeting of the National Advisory Dental Research Council at the same place on October 12.

News of Dentistry

DENTISTRY TO BE IN NATIONAL SPOTLIGHT OCTOBER 15-18: SENATOR TAFT TO SPEAK: ADVANCE REGISTRATION HIGH

Dentistry will be in the national spotlight October 15-18, when 15,000 members of the Association and their families meet in Washington for the ninety-second annual session of the largest dental organization in the world, and at least 14 other dental groups hold annual meetings in Washington hotels.

Official hotels for the annual session are the Statler and the Mayflower, with the Board of Trustees and the House of Delegates meeting in the Statler. Thirty-four other Washington hotels have pledged accommodations. General registration will be at the National Guard Armory.

International dentistry will be represented by members of the profession from Canada and other countries, and the Fédération Dentaire Internationale, which is sending over a special exhibit for display, will be represented by Cyril de Vere Green of London, England, member of the F.D.I. commission appointed at the Brussels meeting in June to act as consultant to the World Health Organization.

Record attendance is expected at the general meeting on October 16, when Sen. Robert A. Taft of Ohio will discuss the role of the Federal Government in health and welfare.

The National Guard Armory will be headquarters for the scientific program and exhibits, and for the color television programs arranged by the sub-committee headed by Lester W. Burket of Philadelphia, member of the Council on Dental Therapeutics.

HOTEL RESERVATIONS

Excellent accommodations in Washington hotels may be obtained by using the form on page A-71 of this issue of THE JOURNAL. Advance registration with the Housing Bureau indicates record attendance.

Association Affairs

COUNCIL INVITES INSPECTION OF NATIONAL DENTAL MUSEUM

The annual session of the Association in Washington next month provides an opportunity for members to inspect the National Dental Museum, dental section of the Army Medical Museum located in the Armed Forces Institute of Pathology.

Adopted as the national dental museum 56 years ago by the Association, the museum has been redesigned and reconstituted under the sponsorship of the Council on Dental Museum and Registry and, according to Herbert A. Swanson of Washington, D.C., chairman of the Council, invites the critical eye of Association members, as well as contributions of additional specimens. Gross and microscopic material, and especially casts, instruments and appliances, are needed to fill gaps in the collection, according to Col. Joseph L. Bernier, executive secretary and pathologist at the Registry and chief of the dental and oral pathology section of the Institute.

In addition to the museum, the Dental

Registry, under the Council's direction, now contains approximately 9,000 case reports which are available for statistical and other studies, Dr. Swanson reports.

MEMBERSHIP FIGURE UP 2,269 IN JUNE AND JULY

Membership in the Association increased by 2,269 during June and July, bringing the total as of July 31 to 74,154 members, or 290 more than two years ago. Total student membership reached a new high of 9,087.

The balance is comprised of 62,168 active members, 2,658 life members, 229 affiliate, 6 associate and 6 honorary members. Life membership has increased by 588 in the last two years.

ASSOCIATION'S MISSION TO JAPAN IS COMPLETED

The five-member mission of the Association to Japan, consisting of Harold W. Oppice, president, LeRoy M. Ennis, president-elect, George C. Paffenbarger, Stanley D. Tylman, and R. C. Dalgleish, returned to the U. S. on August 7 after an intensive 30-day inspection of dental education and service in that country. During that time innumerable conferences were held with officials and committee members of the Japanese Dental Association, its prefectural societies, and dental schools. Illustrated lectures were given to hundreds of Japanese dentists, and a quantity of literature and several motion pictures were presented to the Japanese Dental Association.

Commenting on the trip, Dr. Oppice stated that although the standard of dentistry in Japan today appears to be on the level of dentistry in the United States 30 years ago, there is an intense desire on the part of the Japanese dentists to elevate the status of dentistry in that country as rapidly as possible. American technics, literature and equipment are being adopted as fast as economic conditions will allow, he said.

The Japanese dentists expressed their appreciation to the mission at many teas, dinners and receptions.

Members of the Alaska Dental Society entertained the mission during a stop at Anchorage, on the way over, and Association members in Honolulu entertained the group on a three-day stopover in Hawaii during the return trip.

The five members of the mission to Japan (front row), at a luncheon given in their honor by the Aichi Prefecture Dental Association on July 13, at the Maruei Hotel, Nagoya. Harold W. Oppice of Chicago, president of the Association, is in the center, flanked by (left) George C. Paffenbarger; Colonel Mollohan, U.S. Medical Corps chief in Tokyo; R. C. Dalgleish; and (right) LeRoy M. Ennis and Stanley D. Tylman. Seated at the extreme left is Dr. Suzuki, managing director of the Japanese Dental Association. Others in the group are officers and members of the host dental society, and civic officials.

Dental Societies

COMPONENT SOCIETY EXECUTIVE SECRETARIES MEET THIS MONTH

Executive secretaries of component societies of the Association, which comprise the Association of Dental Executive Secretaries, will hold their sixth annual meeting September 15-16 at the Hotel Statler in Buffalo.

With public relations the main topic of discussion, guest speakers include Paul H. McMullen, executive secretary of the Cincinnati Dental Society; Karl S. Richardson, executive secretary of the Chicago Dental Society; and Herbert B. Bain, director of the Bureau of Public Information of the American Dental Association.

CORRECT ROSTER OF STATE OFFICERS AS OF AUGUST 1

The roster of state dental society officers published in the August issue of THE JOURNAL (page 226) can be brought up to date as of August 1 by substituting the following for West Virginia:

West Virginia • Wm. R. Loper of Wheeling, president; Carl L. Kennedy of Montgomery, president-elect; J. Bernard Poindexter of Huntington, vice-president; A. B. Drake of Huntington, secretary; John S. Stone of Clarksburg, treasurer.

Dental Education

DENTAL SCHOOLS ANNOUNCE POSTGRADUATE COURSES

University of Pennsylvania • The University of Pennsylvania dental school, on January 21-24, 1952, will offer a postgraduate course in public health dentistry and dental health education, for dentists and dental hygienists, it is announced by Lester W. Burket, dean and director of postgraduate courses.

Purpose of the course is to provide instruction and teaching material which will aid members of the dental profession in both public health and private practice in promotion of greater interest among the public in a reparative and preventive dentistry program.

The course will be directed by Abraham Cohen, supervisor of dental service in the Philadelphia schools and instructor in oral medicine at the University of Pennsylvania dental school, with a staff of 16 authorities in dentistry, public health dentistry and medicine, and education.

Enrollment is limited to 50, and fee is $75. Further details may be obtained by writing to Dr. Burket at the Thomas W. Evans Museum and Dental Institute School of Dentistry, 40th and Spruce Streets, Philadelphia 4.

Temple University • Temple University dental school will conduct a postgraduate course in mouth rehabilitation January 21-26, 1952, under the direction of L. A. Cohn of New York City, it is announced by Louis Herman, director of postgraduate studies, who describes the course as "a concentrated week of lectures and clinical demonstrations."

The course is limited to 20 persons and the fee is $200. Applications are to be addressed to Dr. Herman at Temple University School of Dentistry, 3223 N. Broad Street, Philadelphia 40.

University of Oregon • The postgraduate department of the University of Oregon dental school, Portland, has announced the following 12-hour courses: gold inlays, by Wm. H. Gyllenberg, September 24-25; dental medicine, by Jeff Minckler, October 22-23; orthodontic diagnosis in general practice, by Harold J. Noyes, November 26-27; and full dentures, by Merrill G. Swenson, December 17-18. Fee for each course is $25.

In addition a one-week course in oral surgery, September 17-21, and a one-

Artist's conception of the new $1,155,000 building for the University of Southern California dental school now under construction in Los Angeles.

Completion of the first floor and basement is expected by next spring. In addition to two clinics with 160 dental chairs for treatment of patients by approximately 200 students, the first floor will house an oral tumor clinic sponsored by the American Cancer Society, to which dentists may bring patients for consultation with experts. Funds are being sought for completion of three additional floors to house postgraduate clinics for pedodontics, classrooms for dental hygienists, a library, photography room, faculty offices, undergraduate teaching and research laboratories, and other facilities.

week course in full denture prosthesis, October 1-25, have been announced.

Details may be obtained by writing to Vinson M. Weber, head of the department of postgraduate education, University of Oregon Dental School, 809 Northeast Sixth Avenue, Portland 14, Ore.

EMORY OFFERS TWO-YEAR ORTHODONTICS FELLOWSHIP

Emory University School of Dentistry is accepting applications for a 24-month teaching fellowship in orthodontics to begin July 1, 1952, Frank F. Lamons, professor of orthodontics, has announced.

The fellowship provides "a well-rounded program of guided study, research, and practice which establishes a solid background for beginning the practice of the specialty," with a minimum of time devoted to teaching, Dr. Lamons states.

Graduate dentists and senior dental students may obtain further information, or make application, by writing to Dr. Lamons at Emory University School of Dentistry, 106 Forrest Avenue, N.E., Atlanta 3, Ga.

Four new faculty appointments in the dental school have been announced by Goodrich C. White, university president. William Ashendorf, Jr., William Culpepper, and M. Lamar Harrison have been named dental instructors; Thomas C. Stults has been appointed teaching fellow. All are graduates from the 1951 class of the dental school.

Legislation

COMMITTEE APPROVES BILL TO BENEFIT CHIEF NAVY OFFICER

The House Armed Services Committee on August 14 approved a bill (HR 4205) to provide retirements for the chief of the Dental Division of the Navy Bureau of Medicine and Surgery. The bill, introduced by Rep. L. M. Rivers (D., S.C.) on May 22, proposes to place the Navy dental chief on a par with the chiefs of the other Navy bureaus, by giving him the rank of rear admiral and the same pay and allowances as a major general in the Army.

A bill to provide comparable status to

the chief dental officer of U.S. Public Health Service is awaiting action by the House Committee on Interstate and Foreign Commerce. A similar bill awaits Senate action.

ASSOCIATION STATES VIEWS ON DENTAL ASPECTS OF UMT PLAN

The five-man National Security Training Commission, which must soon present to Congress a plan for a universal military training program, on August 16 heard the recommendations of the Association with regard to measures of health protection for members of the projected National Security Training Corps. The statement was presented by Rudolph H. Friedrich of Plainfield, N. J., chairman of the Council on Federal Dental Services of the Association and vice-chairman of its Special Committee on National Emergency Dental Service, who made recommendations concerning the three major problems involved: the reservoir of prospective dentists, dental services for trainees and use of dental manpower, and post-training liability of the Government for health care.

Care should be taken that, in providing dentists to care for the dental health of a military force of 5,000,000 persons and a Training Corps of 500,000, the supply of dentists for the civilian population is not depleted to the danger point, Dr. Friedrich declared. He recommended that "wherever possible, either civilian dentists or Reserve officers be assigned on a day-to-day duty basis," to make dental examinations at the time of classification and induction and perhaps also periodically in the active Reserve Corps. He recommended that safeguards be taken to insure that the Government assumes responsibility for dental treatment of service-connected conditions only, in persons who have completed their training.

In addition, Dr. Friedrich asked the Commission to include in its report to Congress a discussion of deferment policies, in order to clear up ambiguities in the Act which might affect its administration. He recommended deferment from training of a minimum of 5,500 high school graduates annually from whom the dental schools, by aptitude testing, could later identify potential dental graduates. Deferment of predental and dental students as long as they are making satisfactory scholastic progress also was recommended, so long as each student makes a firm commitment to accept a Dental Reserve Corps commission in the Armed Forces when he graduates, and accepts liability for immediate service, if he is needed, for a period equivalent to the basic training period.

Dr. Friedrich's statement, which was prepared by the Council after consultation with representatives of the Councils on Dental Health and Dental Education and the Bureaus of Public Information and Economic Research and Statistics will be published in the October issue of THE JOURNAL.

DENTISTS DEFEND CHILDREN'S DENTAL HEALTH DAY PROPOSAL

Dentists, both individually and through the Association and its constituent and component dental societies, in August told the House Judiciary Committee what they thought of the recommendation to table the proposed legislation to establish an annual National Children's Dental Health Day. A sub-committee on July 25 recommended that the full committee table the proposal because there were too many requests for similar proclamations.

The legislation, sponsored by the Association, is "part of the long-range program to place emphasis on children's dental health as a basic step in improving the dental health of the nation," E. Harold Gale, Council chairman, told the Committee. Meantime, dental societies

and individual members from all over the Nation sent formal protests to Congressmen and Committee members, urging reversal of the sub-committee's decision.

No further action by the Judiciary Committee had been reported by the time THE JOURNAL went to press.

BILL PROPOSES O.A.S.I. PROGRAM INCLUDE DENTISTS

A proposal to include dentists in the Federal old age and survivors' insurance program of the Social Security Act was proposed on July in a bill (HR 4943) introduced by Rep. C. A. Herter (R., Mass.), and referred to the House Ways and Means Committee.

SENATOR HUNT OPPOSES CUT IN PUBLIC HEALTH PAYROLL

Sen. Lester C. Hunt (D., Wyo.), staunch supporter of legislation to improve the dental health of the public, and the only dentist in the Senate, spoke out in protest on the Senate floor recently against an across-the-board cut in Federal budget appropriations for the U. S. Public Health Service payroll, since it would "cut off men at the National Institute of Dental Research whose work has been under constant observation by the American Dental Association, and which has won the continued approval of that knowledgeable and highly tax-conscious organization." Pointing out that tooth decay has "forced our Armed Forces to reject tens of thousands of potential service men during the two world wars and the present Korean incident," he told Congress that the action "would cut off some of the men who helped find out that a few cents' worth of fluoride placed in city water supplies would halt tooth decay by 60 per cent."

As of August 20, Congressional action on the appropriations bill had not been completed.

ASSOCIATION SUPPORTS BILL TO AID IN RETIREMENT SAVING

The Association's views in support of a proposed amendment of the 1951 Revenue Act to enable self-employed professional persons to set aside funds for retirement, by payments into a pension fund sponsored by a professional association before paying income tax, were presented to the Senate Finance Committee on August 3 by Paul E. Jones of Farmville, N. C., member of the Council on Legislation. The amendment was proposed by Sen. Irving M. Ives (R., N.Y.).

Under the provisions of the amendment, each dentist would be permitted to contribute to a pension fund not more than 10 per cent or $7,500 of his annual net income, whichever is less. Amounts paid in would not be subject to income tax in the years in which they were contributed, but at age 60 the dentist would be eligible for retirement and would receive money paid in, plus accrued interest, in one of three ways. He could draw the funds in a lump sum and pay on it a capital gains tax; he could draw the funds in accrual installments over 15 years, and pay full income tax on each year's installment; or he could use the money to purchase an annuity and pay income tax on its proceeds.

The amendment, which satisfies the terms of the resolution of the Association's House of Delegates in 1948 endorsing the principle of some form of tax relief for the professionally self-employed, has the support of the American Bar Association, the American Medical Association, and other professional organizations. Three similar bills also are pending. They are HR 3456, introduced by Rep. F. R. Coudert, Jr., (R., N.Y.); HR 4371, by Rep. E. J. Keogh (D., N.Y.); and HR 4373 by Rep. D. A. Reed (R., N.Y.).

Following is the text of the Association's testimony, presented to the Senate Finance Committee through its chairman, Sen. Walter F. George:

Dear Senator George:

This letter is in response to the telegram of Miss Elizabeth Springer inviting the American Dental Association to submit for the record its views with regard to the amendment to H.R. 4473, "a bill to provide revenue," proposed by Senator Ives of New York on July 25.

Briefly stated, the purpose of this amendment is to provide a method whereby bona fide members of professional organizations can, to a certain extent, level off their lifetime earnings by postponing a portion of the income tax which would otherwise be levied upon their earned net incomes in any one year, until the funds upon which such tax would otherwise be levied would become available for personal use upon the retirement of the professional person.

Under the proposal a professional man could pay not to exceed ten per cent or $7,500, whichever is less, into a retirement fund sponsored by his profession, during each of his earning years. This sum would not be subjected to income tax during the year in which it was paid into the fund, but would become taxable at the rates then current, when withdrawn after retirement by any of the methods proposed in the amendment.

In electing to serve his fellow-men in the field of personal health services, the dentist, like the physician, the lawyer, and other professional personnel, deliberately postpones the beginning time of his earning period until many years beyond the time when high school graduates first enter the employment market, and for a considerable time beyond the time when the four-year college graduate becomes employable. Today no person can become a dentist until at least six years after his graduation from high school and in most instances this time is postponed seven, eight or more years, depending upon the number of years he spends in college prior to entrance to dental school and in an internship or residency subsequent to graduation but prior to commencing practice.

During this period of preparation for his lifework, the professional man is investing both actual cash for the cost of his education and subsistence and time when he might otherwise be accumulating funds in gainful employment. Subsequent to his entry into practice, he passes through years of low income while attempting to establish a practice. After he is established he has a relatively few years of peak income, following which there is a rapid decline. In the case of dentists this income curve starts at about $3,000 annually at age 25, rises to slightly in excess of $9,000 in his early forties and then diminishes until it reaches the $3,000 point of beginning after he passes his sixty-fifth year. His death, in accordance with the statistics for most white males, will occur shortly after age 65. During his earning period, he must recoup the funds he has invested in his education, meet his ordinary living expenses and still find a way to provide for his old age and that of his widow.

During his earning lifetime, the member of a learned profession is dependent solely upon the difference between his gross and his net earnings for his sustenance. No special provisions favor him in providing for his old age. Unlike many of those employed by others, no one provides a pension fund for him and pays part of its cost. No friendly law guarantees him minimum income in the event his patients fail to patronize him, as is provided for the farmer whose market is depressed. No one pays him unemployment benefits in the event his business fails. By his own choice he is excluded from the benefits of Old Age and Survivors' Insurance.

His very independence makes him more susceptible to the inherent inequities in our tax laws. It gives him the chance to make a varying income but it subjects him to the loss of a larger part of that income to the tax collector, viewed from the aspect of his total lifetime earnings, than is the lot of his fellow citizen who chooses to work for another. In his years of low income he pays as much tax as his neighbor; in his years of high income, the surtax sequesters a large part of his temporarily high earnings.

The Ives amendment offers a partial relief to the professionally self-employed. It does not absolve them of the total tax cost of years of abnormally high earnings, but it does serve to eliminate some of that burden and to postpone the remainder until that portion of the funds set aside under the provisions of the amendment actually become available as disposable personal income. The House of Delegates of the American Dental Association considered this problem in 1948 and adopted a resolution endorsing the principle of some form of tax relief for the professionally self-employed. The Council on Legislation has examined the proposal of Senator Ives and believes that it comes under the terms of that resolution. It, therefore, endorses the proposal as made.

The cost of the proposal, so far as dentists are concerned, would not be unduly high. . . . the revenue lost to the government in any one year would be approximately $8,000,000 if every dentist availed himself of the benefits of the amendment to the maximum extent, a highly improbable occurrence.

The Council on Legislation, on behalf of the American Dental Association, respectfully requests the favorable recommendation of the Committee with regard to the proposed legislation.

Respectfully yours,
Paul E. Jones, D.D.S.
Member, Council on Legislation

International

MEXICAN DENTAL ASSOCIATION TO HOLD CONGRESS THIS MONTH

The first national congress of the Mexican Dental Association (Asociación Dental Mexicana) will be held September 24-30 in Mexico City, during the quadricentennial celebration of the National University of Mexico, it is reported by Samuel Fastlicht of Mexico, D. F.

The scientific program, composed of 14 sections, will cover almost all branches of dentistry and its specialties, Dr. Fastlicht states.

Official representative from the American Dental Association will be Ralph C. Cooley of Leander, Tex.

Medicine, anthropology, archeology, history, social science, and the physical and mathematical sciences, also will be represented in a Scientific Mexican Congress to celebrate the quadricentennial.

Further details may be obtained by writing to the Asociación Dental Mexicana, Insurgentes 257, Mexico, D. F.

PRICE FIXING CHARGED TO BRITISH DENTAL DEALERS

British dental manufacturers and dealers recently were heavily censured by the Monopolies and Restrictive Practices Commission of Great Britain for restraint of trade. The Commission, which investigated the dental industry at the request of the Board of Trade, reported mainly on the pricing practices and restrictive agreements of the Association of Dental Manufacturers and Traders of the United Kingdom, and the Amalgamated Dental Co., Ltd.

The investigators disclosed that because the Amalgamated Dental group control three quarters of the total United Kingdom production of porcelain teeth, retail prices of artificial teeth are held unnecessarily high. The Commission recommended that the group reduce prices of porcelain teeth and reconsider its arrangements for the distribution of burs in the interest of public health.

The Commission also reported that the A.D.M.T., an association of manufacturers and dealers which controls nine tenths of the retail supply of dental goods in the British market, restricts competition by fixing prices and controlling distribution. Since such practices are undesirable in an industry serving the needs of public health, the Commission recommended that the A.D.M.T. revise its rules, regulations and policies. "We recommend," the Commission concluded, "that these practices of exclusive dealing and collective boycott should be prohibited."

Public Health

FLUORIDATION OF WATER IS NOT "MEDICATION"

The Christian Science Church has been assured that addition of fluorides to community water supplies does not constitute medication. After the Church's spokesmen, in a statement issued through the Christian Science Committee on Publication for the State of New Jersey, objected to the practice because, they said, it was "state medicine," Allen O. Gruebbel, secretary of the Council on Dental Health of the Association, replied that fluorides occur naturally in the water supplies of 6,000 communities in the U.S.A., and are also present in many foods we eat. "Therefore," he said, "the controlled addition of fluorides to water

that is deficient in this element is no more a medication than is the action of nature which furnishes fluorides in many water supplies and foods."

USPHS AWARDS TWENTY-FIVE DENTAL RESEARCH GRANTS

A total of $179,878 in grants for 25 dental research projects at 19 universities and hospitals, awarded by the National Institute of Dental Research, has been announced by U. S. Public Health Service. Largest sum, $19,478, goes to J. R. Blayney, professor of dental surgery at the University of Chicago, for his study on the value of water fluoridation in reducing the incidence of caries in school children.

In announcing the grants, USPHS officials called attention to a study under the direction of Reuben Feltman of the Passaic General Hospital, Passaic, N. J., to determine whether a fluorine solution administered during pregnancy is transmitted to the fetal bloodstream and is beneficial.

Following is the full list of grants:

California

Henry M. Leicester,
College of Physicians and Surgeons,
San Francisco.
Mechanism of action of phosphatase inhibitors in prevention of dental caries. ($4,860)

Colorado

William E. Clapper,
University of Colorado,
Denver.
A study of the prevalence of a specific type of lactobacillus in carious and noncarious individuals. ($5,000)

Illinois

J. R. Blayney,
University of Chicago.
To determine the value of adding sodium fluoride to a communal water supply for the purpose of reducing tooth decay in school children. ($19,478)

Bernard G. Sarnat,
University of Illinois,
Chicago.
Facial growth. ($3,219)

Joseph R. Jarabak, and
John R. Thompson,
Northwestern University,
Chicago.
The study of cranial facial growth following: (a) loss of muscle function, (b) loss of mandibular condyle, (c) replacement of mandibular condyle, (d) regeneration of mandibular condyle (rat). ($5,828)

Stewart A. Koser,
University of Chicago.
The oral lactobacilli associated with dental caries; a study of their nutritive requirements with special reference to the vitamins and amino acids needed for growth and acid production. ($3,800)

Massachusetts

Richard S. Manly,
Tufts College,
Boston.
Masticatory function of children. ($10,368)

Kathryn F. Stein,
Mt. Holyoke College,
South Hadley.
Study of malocclusion with especial reference to the factor of heredity. ($1,800)

Paul H. Keyes,
Harvard School of Dental Medicine,
Boston.
Development of a semipurified ration for Syrian hamsters satisfactory for reproduction, growth, and development of caries susceptible teeth. ($2,000)

R. F. Sognnaes,
Harvard School of Dental Medicine,
Boston.
A comparative investigation of histological and histochemical characteristics of normal and carious teeth of animal and man. ($6,939)

Charles M. Waldo,
Harvard School of Dental Medicine,
Boston.
An investigation of the effects of metabolic factors on the tissue changes incident to tooth movement. ($4,004)

Michigan

Harrison R. Hunt,
and Carl A. Hoppert,
Michigan State College,
East Lansing.
Heredity as a factor in the causation of dental caries in rats. ($5,825)

Minnesota

David F. Mitchell,
University of Minnesota,
Minneapolis.

Studies of dental caries and periodontal disease in the hamster. ($7,327)

New Jersey

Reuben Feltman,
Passaic General Hospital,
Passaic.
Prenatal and postnatal ingestion of fluoride salts. ($7,134)

New York

Maxwell Karshan,
Columbia University,
New York.
An investigation of the etiology of periodontoclasia. ($9,088)

Gerrit Bevelander,
New York University.
Calcification of teeth and bones. ($6,048)

Basil G. Bibby,
Eastman Dental Dispensary,
Rochester.
Caries producing potentialities of foodstuffs. ($6,150)

Harold K. Addelston,
New York University.
Roentgen-ray diffraction study of the structure of normal and treated enamel of teeth. ($16,016)

Earl O. Butcher and
A. Cecil Taylor,
New York University.
To secure more information on the mechanism of tooth eruption; to investigate the blood supply and its control in the periodontal membrane, and to determine means of inducing repair in the periodontal membrane. ($2,970)

Albert E. Sobel,
Jewish Hospital of Brooklyn.
Calcification of teeth and its relation to human caries. ($13,184)

William Lefkowitz,
Montefiore Hospital,
New York.
Growth of molar tooth germs *in vitro*. ($9,072)

Barnet M. Levy,
Columbia University,
New York.
Experimental studies on the development of the mandibular arch and teeth in amblystoma punctatum. ($4,860)

Pennsylvania

Wilton M. Krogman,
University of Pennsylvania,
Philadelphia.
Growth changes in head, face, teeth and skeleton generally during the period of the changing dentition, and their relation to the pattern of normal health individual growth. ($12,602)

Virginia

Seymour J. Kreshover,
Medical College of Virginia,
Richmond.
Prenatal influences on the development of the teeth and supporting structures. ($7,700)

Wisconsin

Gunnar Ryge,
Marquette University,
Milwaukee.
Study of microstructure of amalgam. ($4,606)

In addition, a total of $1,416,760 in grants to assist cancer research in 78 hospitals, universities, and other non-Federal institutions in 29 States, the District of Columbia, and England, were announced on August 8 by Oscar R. Ewing, Federal Security Administrator. Forty of the 150 grants were for new research projects; the others were in support of studies already in progress.

Armed Forces

ARMED FORCES NEED MORE DENTAL HYGIENISTS

Ways of meeting the Armed Forces' requirements for dental hygienists was among subjects discussed by the Council on Federal Dental Services when it met with members of the Armed Forces Medical Policy Council, the Health Resources Advisory Committee, other Federal agencies concerned with dental services, and the assistant secretary of the Council on Dental Education of the Association, July 15-17 in Washington, D. C.

A joint study by the Council on Federal Dental Services and the Council on Dental Education of the Association has revealed that Veterans Administration is attempting to develop a job description and salary scale more attractive than the present Civil Service one for dental

hygienists, it was reported. It was reported also that the Armed Forces and U. S. Public Health Service are utilizing all they can get from the limited supply of graduate licensed dental hygienists. Dental chiefs of the Armed Forces said that no plans have been put in operation to train hygienists, pointing out that there is inadequate time to train corpsmen as hygienists during the average period of enlistment. Career planning to allow progress of hygienists through enlisted and officer grades might be a means of encouraging trained dental hygienists to remain in the services, it was reported.

Dental Manpower • The three chiefs of dental services in the Armed Forces reported to the Council that their personnel requirements are being met with a minimum of difficulty, and that morale among dentists being drawn from civilian life is high.

Maj. Gen. Walter D. Love, chief of Army Dental Division, reported that the new practice of assigning complete dental units, under the command of a dental officer, to larger tactical elements was producing a greater volume of dental service than was possible under the former system.

Maj. Gen. George R. Kennebeck, Air Force Dental Division chief, described new regulations for the operation of dental services in the Air Force which, it is reported, are patterned after those now in effect in the Army. Both chiefs reported that their regulations give complete control of dental services and personnel to dental officers.

Rear Admiral Spry O. Claytor, chief of the Navy Dental Division, reported a need for four dentists per thousand Navy personnel, but requested a minimum of three dentists per thousand.

The Council on Federal Dental Services is continuing its study of the dental manpower ratio in the Armed Forces in relation to the needs of both the military services and the civilian population, according to R. H. Friedrich, chairman of the Council.

NAVY NOW COMMISSIONING ASTP-TRAINED DENTISTS

The Navy is now granting Reserve commissions to dentists with ASTP training. Previously, of dentists trained at government expense, only V-12 trainees were eligible.

The new practice was made known on August 8 when the Navy announced that it is seeking volunteer applications from 189 Priority I dentists for commissions as lieutenants (j.g.) in the Naval Reserve and immediate active duty for a period of two years. Priority I dentists are those with ASTP or V-12 training, and those who were deferred from service during World War II to complete their dental education and subsequently had less than 90 days of active duty.

General

DENTAL STUDENTS OFFERED $100 PRIZE IN ESSAY CONTEST

The best essay discussing ways of improving Pan American relations in the dental profession, written by an undergraduate dental student in North, Central, or South America, will win a $100 prize from the Pan American Odontological Association, it is announced by J. A. Salzmann, chairman of the prize essay contest committee.

Subject and title of the essay are to be of the author's own selection. Each essay may be written in the contestant's native tongue, under an assumed name, and must be presented to the dean of his dental college for transmission to Dr.

Salzmann before October 10, deadline for receipt of entries.

The winning essay will be presented at the annual meeting of the Pan American Odontological Association in December, and subsequently will be published in dental journals, Dr. Salzmann states.

Further information may be obtained by writing to Dr. Salzmann at 654 Madison Avenue, New York 21.

LOS ALAMOS MEDICAL CENTER HAS OPENINGS FOR DENTISTS

Opportunities for four dentists and a dental hygienist are available at the Los Alamos Medical Center, where dental care is provided for approximately 16,000 persons including 4,600 children, according to Raymond W. Greene of the dental department.

Further information may be obtained by writing to Dr. Greene at the Los Alamos Medical Center, Los Alamos, N. Mex.

GORDON WINTER, TEMPLE ORAL DIAGNOSIS PROFESSOR, DIES

Gordon R. Winter of Philadelphia, professor of oral diagnosis at Temple University dental school, died on July 30 at the age of 55.

A 1919 graduate from the University of Pennsylvania dental school, Dr. Winter had served since 1945 on the Temple faculty, both in the dental school and in the medical school, where until 1950 he was assistant professor of oral medicine. The latest honor accorded him was the presidency of the Academy of Dental Medicine in which he was installed on June 24. He was active in a large number of professional organizations, local and national, and made many contributions to the literature in dentistry and oral medicine. He is survived by his wife and a daughter.

G. R. Winter

PHYSICIANS' 1949 INCOMES REPORTED UP 4 PER CENT

Average net income of physicians in 1949 was $11,058, an increase of $424, or 4 per cent, over the previous year, according to Department of Commerce statistics published in the July issue of the *Survey of Current Business*. The figure does not include incomes of interns, residents, teachers and military.

Latest figures for dentists (*J.A.D.A.*, March 1950) showed that in 1948 the average net income of civilian practitioners was $6,912, or 5 per cent more than the 1947 figure of $6,571.

Most recent figures are tabulated below.

	1948		1949
	Dentists	Physicians	Physicians
Nonsalaried practitioners	$7,039	$11,327	$11,744
All civilian practitioners	6,912	10,634	11,058
All salaried civilian practitioners	5,691	7,943	8,434

Comparison of the 1948 figures for dentists and the 1949 figures for physicians shows that incomes for both groups are higher in the Far West (California, Nevada, Oregon, Washington) and lowest in New England (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont), according to B. D. Moen, director of the Bureau of Economic Research and Statistics of the Association.

Dental hygiene directors from 26 of the nation's dental hygiene schools, photographed at a meeting with members of the Council on Dental Education of the Association and its Committee on the Training of Dental Hygienists, June 18-20 in the Central Office. The conference, sponsored by the Council, resulted in recommendations regarding curriculum and course content of dental hygiene schools which will be used as a yardstick in the Council's accreditation program now under way.

MIDWEST DENTAL MEDICINE SEMINAR TO MEET THIS MONTH

The Fourth Annual Midwest Seminar of Dental Medicine will be held September 16-20 at Baileys Harbor, Wis., with "The Evaluation of Infection in Dental Practice" as its theme, according to Isaac Schour of Chicago, executive director.

Details may be obtained by writing to the secretary-treasurer, Chester A. Thorsen, 708 Church Street, Evanston, Ill.

ARTHUR W. CHANCE, EMERITUS PROFESSOR AT OREGON, DIES

Arthur W. Chance of Portland, Ore., life member of the Association and professor of dental and oral medicine at the University of Oregon medical school, died suddenly on July 5 at the age of 78.

Dr. Chance retired only last year from half a century's practice of dentistry in which one of his greatest achievements was the founding, twenty years ago, of the department of dental medicine at the University of Oregon medical school, when the concept of relating dentistry and medicine was new. He was a graduate of the Philadelphia Dental College, now the Temple University dental school, and also of the University of Oregon medical school.

LOUIS ST. LAURENT TO ADDRESS CDA CONVENTION

The Canadian prime minister, Rt. Hon. Louis St. Laurent, will address the Canadian Dental Association during its annual meeting September 23-26, it is reported. Another highlight of the meeting will be the first George W. Grieve memorial lecture, which will be presented by Gerald Franklin of Montreal on September 24.

The scientific program includes essays and group clinics on a variety of dental subjects by both Canadian and U. S. clinicians. Among them are a discussion on roentgenographic diagnosis, by LeRoy M. Ennis of Philadelphia, president-elect of the Association; and a review

of the present status of preventive dentistry, by C. M. Williams of the University of Toronto. James P. Coupland of Ottawa will describe the developments which have influenced the course of oral surgery, and Orville Coomer of Louisville, Ky., will discuss the latest developments in hydrocolloid technic for inlays and fixed bridges.

Subjects of the group clinics include full denture construction, hydrocolloid impressions for fixed bridge work, periodontal pocket therapy, pedodontics, root canal therapy, inlay, and amalgam restorations.

Hotel accommodations may be arranged in advance by writing to H. W. Beach, 150 Metcalfe Street, Ottawa.

TWO ORAL SURGERY GROUPS VOTE TO AMALGAMATE

Amalgamation of the Middle Atlantic Society of Oral Surgeons and the West Virginia Society of Oral Surgery was voted in July at the meetings of the two groups in White Sulphur Springs, W. Va., according to Karl Hayden Wood, secretary of the former.

WOMAN IS FIRST P.R. DENTIST WITH PUBLIC HEALTH DEGREE

Francisca Guerra Alvarez, director of the oral hygiene bureau of the Puerto Rico Department of Health, this year became the first Puerto Rican dentist to obtain a master's degree in public health dentistry. Dr. Guerra, who earned the degree from the University of Michigan in Ann Arbor, recently returned to the Islands, where she will be in charge of the school dental program, it is reported.

The recent decision to intensify the dental program for children in the first three grades has been reversed, according to Juan Font Suarez of Santurce, who stated that plans for next year again include a program of dental services for all of the approximately 500,000 children in the Islands by 7 full-time and 34 part-time dentists. Dr. Font stated it was the intention of public health dentists and the consultant to the Oral Hygiene Bureau to continue their fight for an intensified program in the first three grades.

Daniel F. Lynch of Washington, D. C., Fourth District trustee, conducted clinics in oral surgery at the St. Patricio Hospital in Puerto Rico recently under the auspices of the Veterans Administration, on his second trip to the Island this year.

BOSTON CITY HOSPITAL OFFERS ORAL SURGERY TRAINING

An increase in the house staff of the dental department at the Boston City Hospital, Boston, Mass., provides six intern and resident positions yearly in the oral surgery division of that hospital, it was recently announced by Stephen P. Mallett, oral surgeon-in-chief and director of the department.

The positions are two residencies with a salary of $110 a month, two assistant residencies with a salary of $90 a month and two internships with a salary of $70 a month with room, board and laundry provided. Appointments are for twelve months each.

Written and oral examinations for these positions are given in oral diagnosis, oral roentgenology, anesthesia and oral surgery in January each year at the Boston City Hospital.

Application may be made by writing to Dr. Mallett.

Each year one man is accepted for a three year program of training leading to a master's degree from Tufts College Dental School, with the provision that he shall meet the qualifications established by the school and the hospital throughout the training program. Dr. Mallett states.

ORAL PATHOLOGY BOARD EXAMINATIONS OCTOBER 15

Examinations for certification by the American Board of Oral Pathology will be held October 15 at the Armed Forces Institute of Pathology, Washington, D. C.

Further information may be obtained by writing to Col. Joseph L. Bernier, secretary, American Board of Oral Pathology, Armed Forces Institute of Pathology, 7th and Independence Avenue, S.W., Washington, D. C.

BUFFALO DENTAL ALUMNI TO MEET NOVEMBER 7-9

The alumni association of the University of Buffalo dental school will hold its forty-ninth annual meeting November 7-9 in Buffalo, at the Statler Hotel, in conjunction with the Eighth District Dental Society, it has been announced.

Further details may be obtained by writing to Peter L. Battista, program chairman, 778 Niagara Street, Buffalo.

PAN AMERICAN ODONTOLOGICAL GROUP TO MEET DECEMBER 5

The Pan American Odontological Association will hold its fifteenth annual dinner meeting December 5, in New York, at the Hotel Statler, and has invited attendance by other members of the profession.

Details may be obtained by writing to R. H. Brodsky, executive secretary, 14 East 81st Street, New York.

HEART PATIENTS SHOULD HAVE PREOPERATIVE PENICILLIN

Penicillin before dental extractions for all persons with rheumatic conditions or congenital heart disease was recommended

Members of the Council on Federal Dental Services of the Association with Brig. Gen. Oscar P. Snyder, director of dental activities at the Army Medical Center in Washington, D. C., who conducted them on a tour of the dental facilities at the Center on July 16, and other Federal dental personnel.

Seated (l. to r.): F. J. Reichman; William R. Alstadt, liaison member of the Council on Legislation; Rudolph H. Friedrich (chairman); and Gerard J. Casey, assistant secretary of the Council on Dental Education.

Standing: Russell W. Bunting, dental consultant to the Federal Civil Defense Administration; Col. Lynn C. Dirksen, commanding officer, central dental laboratory of the Center; Maj. Russell W. Sumnicht, coordinator of postgraduate education, dental division, Army Medical Service graduate school; William S. Moyes; General Snyder; E. Jeff Justis; Tracy K. Healy; and Lt. Col. John S. Oertel, assistant director, dental division, Army Medical Service graduate school.

Artist's conception of the new Armed Forces Institute of Pathology building, for which ground was broken on July 10 by Maj. Gen. George E. Armstrong, Army Surgeon General. The $7,250,000 structure is expected to be completed in two years.

recently by the Council on Rheumatic Fever of the American Heart Association. Extraction of only one tooth at a sitting also was recommended.

The action, reported in the news letter of the Commission on Chronic Illness, agrees with the findings reported in the June issue of THE JOURNAL.

AAAS TO HOLD ANNUAL MEETING IN PHILADELPHIA

A symposium on fluoridation as a public health measure is included in the dental section of the program for the annual meeting of the American Association for the Advancement of Science, to be held in Philadelphia December 26-31.

Two other dental sessions are planned, the subjects to be announced later, along with 18 other sectional programs and meetings of approximately 45 participating societies. Main meeting place will be Convention Hall, with some sessions meeting in downtown hotels.

Advance registration is urged. Headquarters of the AAAS is 1515 Massachusetts Avenue, N.W., Washington 5, D. C.

CEREBRAL PALSY DENTAL GROUP TO MEET IN OCTOBER IN N.Y.

The Dental Guidance Council for Cerebral Palsy will hold its annual meeting October 30 in New York, and has invited attendance by members of the dental profession.

On the program are a presentation by Edward B. Schlesinger, of the Neurological Institute of Columbia-Presbyterian Medical Center, on the pharmacological motor control of the cerebral palsied and its relation to problems of dental treatment, and a report by Robert L. Fisher and Arnold C. Rosenberg on the functions and procedures at the Columbia Pediatric Cerebral Palsy Dental Clinic.

Details may be obtained by writing to Ida M. Golomb, secretary-treasurer of the Dental Guidance Council for Cerebral Palsy, 47 West 57th Street, New York 19.

BUREAU OF LIBRARY AND INDEXING SERVICE

Additions to the library

The books and package libraries listed here have been added recently to the library collection. Requests for this material, available on loan to all members of the Association, should be addressed to the Bureau of Library and Indexing Service. There is no charge for borrowing books but a rental fee of 50 cents should accompany requests for each package library. Most of these books may be purchased also though the Bureau. A list of package libraries covering 470 topics and of the books acquired by the Bureau since 1940 will be sent upon request.

BOOKS

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AMERICAN DENTAL ASSOCIATION. American dental directory. Chicago, American Dental Association, 1950. 1,013 p. $12.50.

AMERICAN DENTAL ASSOCIATION. COUNCIL ON DENTAL THERAPEUTICS. Accepted dental remedies. 16th ed. Chicago, American Dental Association, 1950. 207 p. $1.50.

ASGIS, A. Leadership in dentistry-laboratory relations; its role in American dental culture. New York, First, Second and Tenth District Dental Societies of the State of New York, 1950. 187 p. $3.50.

BAGNALL, J. S. Bibliography on caries research. Prepared for and issued by the Associate Committee on Dental Research. Ottawa, National Research Council of Canada, 1950. 557 p. $10.

BARSKY, A. J. Principles and practice of plastic surgery. Baltimore, Williams & Wilkins, 1950. 499 p. $10.

BLAIR, V. P. & IVY, R. H. Essentials of oral surgery. 4th ed. St. Louis, Mosby, 1951. 635 p. $8.

BRECKER, S. C. Porcelain jacket crown; a manual stressing the preparation of normal and abnormal teeth. St. Louis, Mosby, 1951. 263 p. $8

BURROWS, WILLIAM. Jordan-Burrows textbook of bacteriology. 15th ed. Philadelphia, Saunders, 1949. 981 p. $9.

CHATEAU, J. M. & CHATEAU, MICHEL. Précis d'orthodontie et d'orthopédie maxillo-faciale. Paris, Julien Prélat, 1950. 286 p.

CLEMENT, F. W. Nitrous oxide-oxygen anesthesia. 3rd ed. Philadelphia, Lea & Febiger, 1951. 369 p. $6.50.

COLE, W. H. & PUESTOW, C. B. First aid, surgical and medical. New York, Appleton-Century-Crofts, 1951. 432 p. $4.

COOLIDGE, E. D. Endodontia; the clinical pathology and treatment of the dental pulp and pulpless teeth. Philadelphia, Lea & Febiger, 1950. 300 p. $6.

COOLIDGE, E. D. & HINE, M. K. Periodontia; clinical pathology and treatment of the periodontal tissues. Philadelphia, Lea & Febiger, 1951. 318 p. $6.

CRANE, G. W. Psychology applied. Chicago, Hopkins Syndicate, Inc., 1950. 800 p. $4.

DELTA SIGMA DELTA. History of Delta Sigma Delta fraternity, 1882-1946. The Fraternity, 1950. 539 p.

ERICSSON, YNGVE. Enamel-apatite solubility; investigations into the calcium phosphate equilibrium between enamel and saliva and its relation to dental caries. Stockholm, A. B. Thule, 1949. 139 p. $4.

FELDMAN, M. H. Exodontia. With a chapter on dental malpractice jurisprudence, by Michael A. Hayes. 4th ed. Philadelphia, Lea & Febiger, 1951. 290 p. $6.50.

FONTAINE, RAYMOND & ROUAH, SERGE. La profession dentaire devant la loi. Paris, L'Information Dentaire, 1949. 221 p. $4.50.

FRIEDMAN, S. M. Visual anatomy; head and neck. Springfield, Ill., Thomas, 1950. 217 p. $6.50.

GALLAGHER, W. N. Know your teeth; a general review of everyday questions (with answers) asked daily by dental patients. New York, Exposition Press, 1950. 81 p. $2.

HEPPLE, G. H. X-ray in dental practice. London, Century House, 1950. 120 p. $4.50.

HERON, W. T. Clinical applications of suggestion and hypnosis. Springfield, Ill., Thomas, 1950. 116 p. $3.

HOLCK, H. G. O. Laboratory guide in pharmacology for pharmacy and dental students. Minneapolis, Burgess, 1949. 114 p. $2.75.

ILLINOIS UNIVERSITY. COLLEGE OF DENTISTRY. Current advances in dentistry, a manual of the University of Illinois, College of Dentistry, telephone extension program. Edited by Isaac Schour and Saul Levy. Urbana, University of Illinois Press, 1950. 129 p. $3.

INGRAM, F. L. Radiology of the teeth and jaws; including dental radiography. Baltimore, Williams & Wilkins, 1950. 160 p. $3.50.

KLEIN, HENRY. The epidemiology of dental disease; collected papers of Henry Klein, 1937-1947. Washington, Federal Security Agency, 1948.

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LERCHE, WILLIAM. The esophagus and pharynx in action; a study of structure in relation to function. Springfield, Ill., Thomas, 1950. 222 p. $5.50.

LINDE, J. A. Linde orthodontic appliances and orthodontic materials illustrating practical procedure in management of malocclusion. New York, Author, 1951. 69 p. $3.50.

LONGMORE, T. A. Medical photography; radiographic and clinical. 4th ed. London, Focal Press, 1949. 1,008 p. $12.50.

LUNDSTRÖM, ANDERS. Tooth size and occlusion in twins. Basle, Switzerland, S. Karger, 1948. 203 p. $4.

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MARTENSSON, GUNNER. Dental injuries following radical surgery on the maxillary sinus. (Acta Oto-Laryngologica Supp. 84) Stockholm, 1950. 74 p. $3.50.

MCGEHEE, W. H. O., TRUE, H. A. & INSKIPP, E. F. A textbook of operative dentistry. 3rd ed. Philadelphia, Blakiston, 1950. 699 p. $10.

MEAD, S. V. Anesthesia in dental surgery. 2nd ed. St. Louis, Mosby, 1951. 648 p. $12.50.

MENKIN, VALY. Newer concepts of inflammation. Springfield, Ill., Thomas, 1950. 145 p. $3.50.

MILLER, J. J. Your teeth, and how to keep them. rev. and enl. ed. New York, Lantern Press, 1951. 244 p. $3.

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PACKAGE LIBRARIES

Anesthesia, emergency.
Auxiliary dental personnel.
Lidocaine (xylocaine).
Oral surgery—premedication & postmedication.
Periodontal disease—bone involvement.
Periodontia, preventive.

Cases and Comments

PERIODONTAL REATTACHMENT: CLINICAL AND ROENTGENOLOGICAL EVIDENCE

By John Oppie McCall, D.D.S., New York.

That reattachment of soft tissue to root surface can take place after its detachment in periodontitis has been claimed for many years. This claim has been widely disputed with the statement that the supposed reattachment was simply a close approximation of soft tissue to root surface. This assertion is based on the fact that in the course of pocket formation the original tooth supporting fibers of the pericementum were destroyed, as well as the adjacent bone and the cementoblasts in the involved area, and that, therefore, regeneration of the original pericementum with cemental insertion was impossible.

Regeneration of original pericemental tissue is not possible, but new fibrous tissue can form and can come into organic union with the root surface, thus obliterating the pocket. Box, whose work has had limited publication in the United States, presented photomicrographs and roentgenograms in 1924[1] and 1928[2] exhibiting reattachment through the medium of new fibrous tissue, as well as formation of new bone. The cases illustrated by Box were clinical cases in humans.

Recently, Linghorne and O'Connell[3] presented results of experimental studies on reattachment, using dogs, and inducing pocket formation surgically. They found that under suitable circumstances reattachment occurred. They pointed out that the fibers of the new tissue ran parallel to the root surface, not transversely, an observation which had been made by Box in the earlier works cited. The fact of reattachment was in either case indisputable.

In a great percentage of cases, with proper treatment, reattachment can be induced and thus the most desirable end result obtained. The following case report illustrates the possibilities in a case of advanced periodontal disease.

REPORT OF A CASE

A woman, 54 years of age, in good health and with no significant history, came to this office on October 18, 1949, with a periodontal abscess approaching the acute stage. The abscess involved the upper left lateral incisor and cuspid, and tended to point labially between them a little below the apical area. Inadequate restoration of missing teeth had caused a partially closed bite, and a decided traumatic occlusion involving especially the cuspid. The traumatism was intensified by pressure from an over-tense clasp on the cuspid, used to retain a partial denture; there were no natural upper teeth posterior to the cuspid. Both cuspid and lateral incisor were vital. Roentgenograms A and B, shown in the illustration, were taken at the time of examination. Exploration showed deep periodontal pockets on the mesial aspect of the cuspid root and the distal aspect of the lateral incisor, opening from the lingual side. Otherwise there was no gingival detachment and but slight recession. The cuspid was slightly mobile.

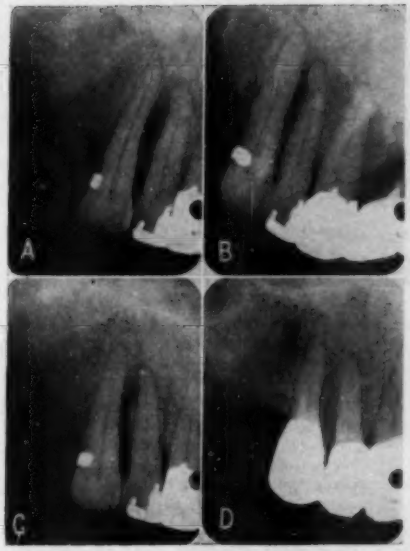
Treatment at the first sitting was aimed at relieving the trauma caused by the closed bite and the denture clasp and aborting the abscess. After the pressure from the clasp had been eased and the excessive occlusal pressure had been relieved as much as possible by grinding, the pockets were entered with curets and the root surfaces were partially scaled, care being taken not to traumatize further the inflamed tissue. A few drops of mercuric cyanide 1:1,000 were instilled gently into the pockets by means of a glass syringe with a blunt platinum needle passed to the abscess area.

About 10 days later, the acute abscess having subsided, the area was anesthetized by infiltration with the usual procaine solution. The entrance to the pockets on the lingual proximal aspect was enlarged laterally by a slender periodontal knife, to provide free access to the abscess area for curettage. No flap was made, nor any incision, nor was any gingival tissue resected. Thorough curettage of both of the involved root surfaces and of the adjacent soft tissue was performed, and after the hemorrhage subsided a few drops of mercuric cyanide 1:1,000 were introduced as be-

1. Box, H. K. Studies in periodontal pathology. Toronto, Canadian Dental Research Foundation, 1924. p. 419-428.

2. Box, H. K. Treatment of the periodontal pocket. Toronto, University of Toronto Press, 1928. p. 102-120.

3. Linghorne W. J., and O'Connell, D. C. Studies in the regeneration and reattachment of the supporting structures of the teeth. J. D. Res. 29:419 (Aug.) 1950.



Roentgenologic evidence of periodontal reattachment and regeneration of alveolar bone after treatment of periodontal abscess by curettage. A and B: Abscess involving upper left lateral incisor and bicuspid, on October 18, 1949. C: On March 6, 1950, five months after treatment of the abscess area by curettage, only slight rarefaction remained to indicate the focal point. D: On July 26, 1950, complete rebuilding of bone was revealed by roentgenogram

fore. There had been a slight change in the occlusion since the preceding visit, so a little additional grinding was done.

On March 6, 1950, the pockets were found to be completely closed. The surrounding tissues were pink and firm and the teeth were comfortable. Roentgenogram C, taken at that time, shows only slight rarefaction remaining to indicate the focal point of the original abscess.

Roentgenogram D was taken July 26, 1950, after the completion of mouth rehabilitation, including an internal attachment bridge for the upper jaw, and restoration of the original occlusal height by crowns and a bridge on the lower jaw. This roentgenogram reveals complete rebuilding of bone between the cuspid and the lateral incisor, including reestablishment of the lamina dura on the mesial aspect of the cuspid root.

COMMENT

It has been agreed that, in order to produce satisfactory reattachment, the epithelium, which progresses along the soft tissue wall as pocket formation takes place, should be removed during treatment. I have used a solution of sodium sulfide and sodium hydroxide to dissolve or break up this epithelium; some have advocated the use of phenol, phenolsulfonic acid, and other caustics; others depend on soft tissue curettage alone. None of the drugs mentioned was used in the case described, as pocket closure occurred after the second curettage. It can be assumed that in this case epithelial ulceration had occurred in the course of abscess formation and that only simple curettage was needed to dispose of remaining epithelial tissue.

CONCLUSION

It is a matter of considerable importance to the profession to know definitely whether or not closure of periodontal pockets by organic reattachment of soft tissue to root surfaces can take place. By this means, eradication of foci of infection, and saving of teeth which must otherwise be lost or subjected to extensive gingivectomy, may be accomplished in a large percentage of cases. Evidence is offered not only that such reattachment is possible under suitable circumstances, but that regeneration of alveolar bone may also occur.

133 East 58th Street

A CASE OF PENICILLIN ALLERGY

By Milton R. Segal, D.D.S., Dayton, Ohio.

A 27 year old woman was referred to this office on April 5, 1950, with marked gingival edema (Fig. 1). The gingivae practically covered the crowns of several of the anterior teeth. The referring dentist had previously lanced the tissue in the lower left cuspid area. The edema recurred on the following day.

Acute monocytic leukemia was suspected but was ruled out by hematologic examination. Blood count showed 4,250,000 R.B.C.; 9,500 W.B.C.; 80 per cent hemoglobin. Bleeding time was 3½ minutes, and clotting time 4 minutes. The differential white count was as follows: neutrophils, 73 per cent (68 per cent segmented and 5 nonsegmented); lymphocytes, 24 per cent; monocytes, 1 per cent; eosinophils, 1 per cent; basophils, 1 per cent.

Urinalysis yielded negative results. The re-

Fig. 1 • Marked gingival edema in 27 year old woman when first seen April 5, 1950

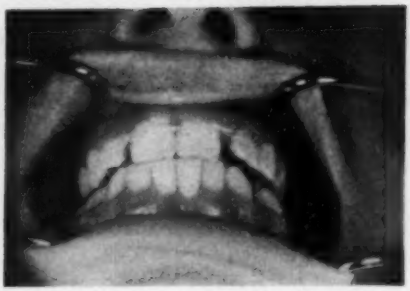


Fig. 2 • Improved appearance of gingivae on May 9, 1950

sult of the Kahn test also was negative.

The patient then reported that she had received an intramuscular dose of penicillin and that swelling of the gums and the right great toe had appeared one week later.

A mild mouthwash was prescribed. No medication or instrumentation was attempted. Marked improvement was apparent in three weeks, and treatment was then instituted for the periodontitis. Figure 2 shows the improved appearance of the gingivae on May 9, 1950.

The facts of the case suggest a penicillin allergy.

761 Reibold Building

Anesthesia and the Cardiac Patient • The question of whether a patient with cardiac disease will survive the strain of anesthesia and surgery is one which should be resolved only by close consultation between surgeon, cardiologist and anesthesiologist. Having once decided that the expected benefits outweigh the risk, it is then the duty of the anesthesiologist to select the agent or agents and outline the management of the case in such a way that there will be as little variation from normal physiology as possible. In making his choice the anesthetist should keep in mind the very real danger of sudden death, with its attendant burden of proof that the choice was justified. ***Forrest E. Leffingwell, "Choice of Anesthesia in Heart Disease," Annals of Western Medicine and Surgery 4:244 May 1950.***

Book Reviews

HARVEY CUSHING: SURGEON, AUTHOR, ARTIST

By Elizabeth H. Thomson. 347 pages with illustrations. Price $4. New York, Henry Schuman, Inc., 1950.

This biography is shorter than the original biography of Harvey Cushing by John H. Fulton, and hence is more suitable for the general reader, the dentist, and the professional men other than physicians and surgeons. It is both entertaining and informative. It is based largely on Dr. Cushing's letters and diaries and shows the author's careful selection of material. The illustrations are likewise well chosen and the book is well written.

Harvey Cushing not only led a very active professional life but lived a full life with many interests and activities difficult to portray in a biography. The author has been concerned largely with Dr. Cushing's numerous trips abroad, meetings, honorary degrees received and excerpts of his remarks. This provides interesting reading, but when one considers Cushing's illustrious career and his monumental contributions to brain surgery from a medical standpoint, it falls a little short of an over-all biography consistent with his life and work. It would seem that more space might well have been given to his work at Peter Bent Brigham Hospital, his untiring clinical and experimental research, his enthusiasm and devotion to the training of neurosurgeons, and the advance of knowledge in his special field of endeavor.

This book is an outstanding record of a man of intense energy and zeal in search for further knowledge in his special field. An ardent book lover, he sought out all texts portraying the early discoveries in the field of medicine and surgery. An artist in his own right, he reveled in the artistic stimulation afforded him on his numerous trips to Europe. A firm believer in laboratory experimentation, Cushing never lost sight of the fact that the primary concern of all medicine was the good of the patient. Cushing also was an outstanding writer. His *Life of Sir William Osler* was published after five years of meticulous painstaking preparation and gathering of data. It was acclaimed as the greatest medical biography that had ever been written.

This life of Cushing is recommended for all professional men.

C. W. Waldron

THE NEW PHYSICS—TALKS ON ASPECTS OF SCIENCE

By Sir C. V. Raman. First edition. 144 pages. Index. Price $3.75. New York, Philosophical Library, Inc., 1951

The material in this small book was originally delivered as a series of radio talks to the Indian public, and is intended primarily for the layman. The author, one of the most distinguished physicists of our time, discusses parts of nature with which all of us come in contact, but which few of us attempt to understand; that is, shells, light and color in nature, soil, water, weather, atmospheric electricity, structure of the crystal, cosmic rays and other topics.

The book is well written in a conversational style. While it is too brief and insufficiently documented for a student of physics, it nevertheless should give the lay reader an opportunity of penetrating at least part of the way into the mysteries of this interesting and important science. The index, though very limited, is so arranged that it affords ready reference to specific items covered in the contents.

E. Alan Lieban

PRINCIPLES AND TECHNIQUES IN SOCIAL CASEWORK: SELECTED ARTICLES, 1940—1950

By Cora Kasius, editor. First edition. 433 pages. Price $4.50. New York, Family Service Association of America, 1950.

This book makes available in a convenient form a number of important papers dealing with basic principles in social casework. A reading of these articles makes one acutely aware of the great progress that has been made in the last decade. The accumulation of a common body of knowledge, improved methods of research and greater insight into personality development all make the caseworker of today a far cry from the ladies with baskets who, in the tradition of Hannah Moore, busied themselves with charitable works.

Unfortunately the distance that social work has traveled towards becoming a disciplined science sometimes blinds those in the field to the distance it still has to go. This is unintentionally revealed in these papers. Reading them all together one is impressed with the

amount of confusion and contradiction between the different writers. For example, even those who supposedly have a similar orientation have widely differing interpretations of problems as fundamental as the distinction (if any) between casework and psychotherapy or the ways in which caseworkers can use transference as a tool. Much of this may stem from a confusion in terminology, but caseworkers cannot afford to sneer at semantics and a clarification of its basic terms is essential if casework is ever to achieve the scientific recognition that it seeks.

It is also unfortunate that those most vitally concerned with the establishment of fundamental concepts sometimes write in an esoteric manner which approaches a mystic jargon all its own. This is well illustrated in some of the articles discussing the difference between the "functional" and the "organismic" approach. It is time that social workers recognized that involved terminology does not make social work more scientific or its truths more valid.

Paulette K. Hartrich

JAMES LIND: FOUNDER OF NAUTICAL MEDICINE

By Louis H. Roddis, M.D. First edition. 177 pages with 8 illustrations. Index. Price $3. New York, Henry Schuman, Inc., 1950.

The romance of science is graphically portrayed while the author skillfully weaves into the picture a view of life at the time of James Lind, "Founder of Nautical Medicine." In this small volume the author tells the great advances in naval hygiene and also describes the nautical life in the navies of that era.

James Lind, 1716-1794, a surgeon in the Royal Navy of Great Britain, may well be called the founder of naval hygiene. This advanced thinker and keen observer demonstrated the value of the antiscorbutic diet in the prevention and cure of scurvy. He introduced the use of lime juice as an effective remedy for this disease. Its use became so widespread that to this day British sailors are known as "Limeys."

His contributions to the field of hygiene are manifold. The present "boot camp" is a direct result of his work. The procedure of recruits' being isolated, undergoing physical examinations and receiving new clothes is his achievement. Lind's greatest books are *A Treatise on Scurvy*, published in 1753 and *An Essay on Preserving the Health of Seamen in the Royal Navy*, 1757.

The author of this biographical sketch, Louis H. Roddis, is an able historian, well known in naval circles for his biographies of medical pioneers. He brings to his work the experience of more than 30 years in the U. S. Naval Medical Corps. In *James Lind* the author presents, in narrative form, the scientific advances in medicine blending them with history. It is written in an entertaining and vivid manner. The reader gets the feeling of sitting in the crow's-nest watching the development of medicine, while observing life on shipboard and the growth of the navies of the world.

C. V. Rault

TEXTBOOK OF PERIODONTIA

By Samuel Charles Miller, D.D.S. Third edition. 900 pages with illustrations. Price $11.50. Philadelphia, The Blakiston Co., 1950.

In his third edition, Dr. Miller discusses every phase of periodontal disease. The text begins with the description of cell physiology, histology and pathology of the various tissues concerned in periodontal treatment.

Causative factors of periodontal disease are presented and discussed, numerous illustrations are shown and local etiologic factors are enumerated and elaborated upon. To a certain extent the relation of systemic conditions to periodontal lesions is correlated; however, it is stressed that some phases of periodontal disease will remain an enigma until well controlled investigations solve the relationship between systemic disturbance and their possible oral manifestations.

A considerable portion of the text is devoted to the description of laboratory aids to diagnosis such as blood tests, urinalysis, basal metabolism tests and skin tests. Dr. Miller stresses the importance of the dentist being aware of any deviation from the normal through his knowledge of these tests.

Technics of pocket treatment and indications for their use are presented. Among those described in detail are conservative subgingival curettage, chemicocautery, mechanical methods of pocket reduction, surgery, both conservative and radical, and electrosurgery.

A discussion of occlusal trauma and methods of detection and correction may provide some valuable information leading toward conservation of the periodontal structures.

Chapter 22 emphasizes the need for attention to periodontal disease in children. The author stresses the possibility that it is the forerunner of periodontal disease in adults. The opinion of this reviewer is in accordance with some of the views expressed in this

chapter; namely, prompt elimination of minor lesions, since correction in the child is generally simpler inasmuch as response is more rapid.

In general, the author strives to cover every phase of periodontal disease and treatment. The bibliography is extensive and carefully selected. This book would be a good addition to the dentist's library.

Joseph S. Restarski

BOLETIN ADMINISTRATIVO DEL MINISTERIO DE SALUD PUBLIC DE LA NACION (ADMINISTRATIVE BULLETIN OF THE MINISTRY OF PUBLIC HEALTH OF THE NATION)

361 pages. Index. Argentina, Buenos Aires.

The accomplishments of the Argentine Ministry of Public Health for the months of October, November and December, 1949, are compiled in a 361 page report published by the government of that country.

A classified summary of all laws pertaining to public health passed during the period is carried in the initial pages. Coverage of the many phases of public health work is exhaustive and includes such items as notations on appointments of various persons to health department offices, with listing of qualifications of said individuals for their posts; an extensive compilation of nomenclature for all categories of fatal illnesses, as approved by the first World Health assembly and accepted as official by Argentina; legal aspects of the sale of blood plasma, and a résumé of laws pertaining to retirement pensions for public health officials. Three officially sponsored dental missions, one to the United States, one to Brazil and one to Europe, are cited.

There is an alphabetical index and a list of recent health laws showing the number of the legal decree, date of passage and page on which it will be found in the report. The book is in Spanish.

Martha Ann Mann

COLOR ATLAS OF PATHOLOGY

Prepared under the auspices of the staff of the U. S. Naval Medical School of the National Medical Center. 546 pages with 1,053 figures in color on 365 plates. Index. Price $20. Philadelphia, J. B. Lippincott Co., 1950.

This book supplies a universal need for a reliable and inclusive atlas for use in the study and identification of diseased organs and tissues. It is equally suited to the classroom, the laboratory and the clinic. It is impossible to describe the initial enthusiasm created by the generous use of color in the pictorial presentation of pathological material. This highly favorable first impression is heightened by the excellence and clarity of the first plates on diseases of the hemopoietic system. However, further examination of the succeeding pages proves once more that neither the color expert nor the most skillful photographer can start with the handicap of a poorly selected and poorly prepared specimen and produce results of a high grade of excellence. There are plates on pages 277, 280, 282 and 286, for example, that fall far short of the high standards attained by the majority of the reproductions. There is a brief text to accompany the pictures that has been prepared with great care and there is also a very useful index. There are 23 pages of text and 56 plates covering the diseases of the oral cavity. The successful completion of such a project was made possible only by the hearty cooperation of a highly competent technical staff with able clinicians and pathologists in such an institution as the Naval Medical school. Both the publishers and the staff deserve the greatest credit for their successful cooperation in this very useful project.

E. H. Hatton

BACTERIAL POLYSACCHARIDES

By Martin Burger. First edition. 272 pages. Author and subject index. Price $6. Springfield, Ill., Charles C Thomas, 1950.

The purpose of this monograph is to present a review of the voluminous literature on the preparation, chemical characteristics, serologic reactions and clinical significance of the bacterial polysaccharides that are associated with infection and immunity.

Although the classical studies on the capsular and cellular polysaccharides of the pneumococci were not the earliest in this field, they established a pattern for reinvestigation or investigation of similar substances from a large number of pathogenic bacteria. The results have led to a better understanding of the relationships between these substances and pathogenicity as well as to more rapid and accurate methods for diagnosis and specific treatment. The characterization of bacterial polysaccharides has been a major contribution to epidemiology, for their use in serologic tests has clarified the identity of bacteria involved in various infectious diseases.

The author has cited over 750 references in describing the results of investigations on

polysaccharides from pneumococci, streptococci, tubercle bacilli, typhoid bacilli and many other bacterial genera of importance in infectious processes. The appendix contains specific procedures for isolation of these substances from a dozen or more bacteria. The chapter on the enzymes, gramicidin and tyrocidine, as methods of treatment, serves no useful purpose since the more recent and effective antibiotics are not included.

As far as the dental profession is concerned this book is of use only to those who are interested in fully identifying organisms isolated from oral infections that may be of local or general origin or from the "normal" bacterial flora of the oral cavity.

Ned B. Williams

KONSERVIERENDE ZAHNHEILKUNDE (OPERATIVE DENTISTRY)

By Hans-Hermann Rèbel. Third edition. 548 pages with 218 illustrations. Price 34 DM. Munich, Carl Hanser, 1950.

This is the third edition of a book by a noted German dentist which first appeared in 1937. The author's objective in the first edition was to show the important advances in operative dentistry since the publication of G. V. Black's work in 1908, particularly as operative dentistry had advanced beyond the question of what filling materials to use to a deeper appreciation of pulp conservation and treatment of apical infection. In the prefaces of the second (1947) and this third edition, however, the author comments on the isolation of German dentistry, and his inability to provide the illustrations he considers necessary in a book of this kind. These are conditions which he hopes will have passed when a new edition is prepared.

The author has divided the book into six parts. The first part, which covers the principles of diagnosis, operative procedures, filling materials, and the bleaching of teeth, and the second part, which concerns pulp treatment and periapical infections, account for over four fifths of the book. They are presented in considerable detail. Some of the older methods are perhaps more thoroughly treated than necessary. In such a recent German book one might expect to find information on the self-curing or auto-polymerizing resinous filling materials. Discussion of acrylic filling materials, however, is limited to a half page on inlays. Part three on the treatment of deciduous teeth is allotted 16 pages. The fourth section of four pages presents precautions regarding the various failures in treatment and extraordinary conditions that may be encountered in practice. Mouth hygiene, part five, is covered in 20 pages; and part six with 12 pages is devoted to medicaments. An extensive index is provided along with a detailed table of contents.

Donald A. Washburn

PUBLIC HEALTH IS PEOPLE

By Ethel L. Ginsberg. 241 pages. Price $1.75. New York, The Commonwealth Fund, 1950.

This book is really a report of an institute on mental health in public health which was held at Berkeley, California, in 1948. "In this institute eight psychiatrists, three pediatricians with psychiatric training, and five public health leaders served as faculty for thirty health officers who comprised the student body." The book is an outgrowth of the institute, is written largely in a form similar to well written minutes covering a series of meetings, and deals with the psychological and psychiatric problems and relationships that develop in the field of public health. Through the application of good teaching technics these problems were brought out from the student body. They were developed and solutions were suggested through group thinking.

There is an informative chapter on the psychological development and behavior growth of children through infancy into youth. The psychology of meeting people is pointed up in the "violation of the individual's right to be recognised and treated as a human being," as demonstrated in the hurried and mechanical performance of receptionists when filling out admission blanks or other forms.

The book requires careful reading, especially in the first part, to separate the chaff from the wheat and, although dealing with an important subject, is not a necessary volume in a limited public health reference shelf.

H. Shirley Dwyer

POCKET ENCYCLOPEDIA OF ATOMIC ENERGY

By Frank Gaynor. 204 pages with 34 charts, tables and drawings. Price $7.50. New York, Philosophical Library, Inc., 1950.

This pocket encyclopedia, arranged by the writer and editor Frank Gaynor, consists of an alphabetical listing of the terms of nuclear physics and atomic energy. The subjects include atom bombs, biographical sketches, chemistry of radioactive materials, H-bomb,

magnetism, important nuclear research laboratories and power plants, nuclear fission, radiation physics, tracer (technic), and units of measurement in electricity.

Many of the tables are very useful. For example, the one on isotopes is 21 pages long and gives the atomic number, name, symbol, mass, natural abundance of stable isotopes, half-life and radiation of the radioactive isotopes. There are over 2,000 entries in this comprehensive collection of brief definitions and explanations of terms, edited for the interested layman and student. An introductory knowledge of physics and higher mathematics greatly increases the uses to which the book can be put. However, to the dentist, scholar or investigator this encyclopedia is a gold mine of information providing a ready reference to new or infrequently used terms and technical data.

The usefulness of the encyclopedia has been greatly enhanced by the inclusion of German equivalents for most of the terms. To one attempting to master a new field, the encyclopedia offers a particularly useful clearing house for the numerous and confusing symbols of atomic science.

In some of the entries the descriptions seem rather brief; for example, Los Alamos is described in five lines whereas an extensive description was included in the Smyth report.

The encyclopedia is thoroughly cross-indexed; for example, the successive decay products of radium are presented under the uranium-radium series; the principal entry is referred to under: radioactive series, radioactive family, radium series, radium, radon and numerous other pertinent terms. The uraniu-radium series consists of a natural radioactive series of 19 isotopes which starts with U^{238} and ends with the stable lead isotope Pb^{206}.

William Ward Wainwright

AN INTEGRATED PRACTICE OF MEDICINE

By Harold Thomas Hyman, M.D. "Progress Volume." 734 pages. Index. Price $10. Philadelphia, W. B. Saunders Co., 1950.

This is a "progress volume" whose purpose it is to "up-date" the five volume *Integrated Practice of Medicine* issued in 1947. Emphasis, through the entire series, is placed on developments in therapeutics and methods of treatment.

While it is difficult to determine whether the intervening three years which the volume covers should be credited with greater achievement than other comparable periods, there is good evidence that progress from 1947 to 1950 was at flood tide. This was the result, perhaps, of the stimulation and acceleration of research which characterized the war years. The list of products which came into general use in the last few years includes ACTH, cortisone, antihistamines, aureomycin, chloramphenicol, Terramycin and tyrothricin to say nothing of a host of others. All of these are discussed in the current volume in terms of available preparations, pharmacology and therapeutics. While the production of so large a book is necessarily time consuming an effort to include the latest possible findings of the research laboratories and the clinician has been successful.

The dentist will be interested in many sections of this book, particularly those on penicillin, sulfonamides and aureomycin. The volume will be useful in supplementing, but not replacing, the more particularized material to be found in *Accepted Dental Remedies*. For the dentist who is interested in developing a background of information of areas beyond dental practice, this book will be useful. There are more than 200 pages of indexes of various types in the "progress volume," and such generosity indicates that the meaning of the word "integrated" was not lightly held by author or publisher. There is easy access to all of the volumes via these indexes, and this feature suggests that the present volume will be a good tool of quick reference.

ANATOMY FOR DENTAL STUDENTS

By Mary F. Lucas Keene, D.Sc., M.B., and J. Whillis, M.D. First edition. 342 pages with illustrations. Index. Price $7.50. Baltimore, Williams & Wilkins Co., 1950.

Anatomy for Dental Students is a volume of 342 pages including index. Obviously a rigorous culling was necessary to describe the structure and touch on the embryology of the human body in such brief space. The book is well written and interesting. Illustrations are fairly numerous but too often repeated. The paper and binding and the typography are excellent. However, the place occupied by gross anatomy in American dentistry is such that an abridged volume cannot serve dental students. This book leaves much to be desired.

The objectives in the study of anatomy as set forth in the curriculum of the American Association of Dental Schools can be summarized as follows:

To obtain a general, and in some parts a specific, knowledge of the anatomy of the

human body to make possible an understanding of physiology and pathology and a detailed knowledge of the anatomy of the face, jaws, and structures directly associated with them. This will make possible an appreciation of the practical applications of anatomy in the clinical practice of dentistry and will also help the student to understand the anatomical background of clinical and research papers.

An octavo volume of 342 pages cannot meet these requirements because too much material is wholly omitted and much that is included is inadequately described.

K. L. Vehe

ESSENTIALS OF NUTRITION

By Henry C. Sherman and Caroline Sherman Lanford. Third edition. 454 pages. Index. Price $4.25. New York, Macmillan Co., 1951.

This is a readable discussion of the individual dietary essentials, written in simple language, yet a good review for those with nutritional background. It has been prepared primarily as a college textbook. Thus, classroom teaching and use of the exercises listed would supplement the data. For nonclassroom use, the book would be enhanced by more specific guidance in the daily use of food. Of course, the reader is referred to Rose's *Feeding the Family* for full development of this phase. Yet practical advice could have been clarified, for example, by mere rearrangement of chapter 20 "Food Costs and Values." This would require a shift only in title and subject matter. Then it would follow more logically, too, the introductory paragraphs of the chapter. These state that the practical problems of food supply are not only enough food, but enough of the right kinds of food. But the nonclassroom reader must still search for a specific recommendation of what constitutes "enough of the right kinds of food." If such a basic plan had been outlined, based preferably on a daily scheme, and then been followed by the discussion of costs, there would be a clearer understanding of how to proceed. Better budgets can be planned when one knows for what the money should be spent.

Of interest to the dentist is chapter 18 on "Some Relations of Food to the Teeth." This follows the customary plan of limiting discussion to the problem of dental caries. Periodontal phases are mentioned only as related to vitamin C. Even so, more space is devoted to the current subject of fluorides than to sugar intake.

After reading this book one will have an excellent concept of the basic facts about each individual dietary essential, and of the importance of obtaining a diet for support of the highest degree of nutritional well-being.

Dorothea F. Radusch

RADIOGRAPHIE BUCCO-DENTAIRE ET AGENTS PHYSIQUES EN STOMATOLOGIE

By P. Bertrand, M. Dechaume and G. Lacronique. Second edition. 522 pages with illustrations. Price 1,800 francs. Paris, France, Masson & Co., 1950.

This book is the latest one published in France on dental roentgenology and roentgenographic diagnosis and treatment in mouth diseases.

In the first eight chapters the authors show, in detail, roentgenological equipment and the basic principles of roentgen rays. In the following chapters, several methods of securing full mouth roentgenograms are described, discussed and illustrated. Extraoral technics for the mandible, maxillae, sinus and temporomandibular joint are also described. The authors mention briefly stereoscopic roentgenography, teleroentgenography and tomography.

The second section of the book deals with diagnosis in roentgenology. This part is divided into two main chapters. The first is devoted to the interpretation of normal roentgenograms. The good illustrations enable one to better visualize each case. The second part of this section deals with the roentgenographic evidence and diagnosis of various lesions affecting the teeth, mandible, maxilla, temporomandibular joint and sinus. The authors also explain in detail the technic for good sialography and its value in diagnosing diseases of the salivary glands. They also insist on the great diagnostic value of tomographic roentgenograms for the exact localization of all the important lesions of the stomatognathic system. The last section is devoted to a discussion of root canal therapy by ionophoresis, ozone and high frequency current.

Hratch Abrahamian

INVESTIGATIONS INTO THE BACTERIAL CHEMISTRY OF DENTAL PLAQUES

By Allan Stralfors. 191 pages. Stockholm, Sweden, Tryckeri A.-B. Thule, 1950.

This book is a report on part of the coordinated caries research sponsored by the Swedish Medical Council. The study is a rather inclusive one, dealing primarily with the bacterial flora, the acid-forming potential, the buffering capacity, and a fairly comprehensive theoretical discussion of the dental plaque.

The book contains an excellent review of the literature concerned with the various phases of dental plaque research. Furthermore, the laws of diffusion are reviewed and from theoretical considerations a theory concerned with the rate of diffusion of sugar into the plaque and the rate of diffusion of lactic acid from the plaque is proposed. The author has based his theory on the diffusion in a closed system and he has imposed several qualifications which are necessary for simplification. However, the theory is well developed and explains to a large extent the reactions that have been observed to take place within the dental plaque.

The author has isolated a number of types of microorganisms from the plaque, determined the relative numbers of them, and has measured the acid-forming potential of each. He has further, by means of a series of ingenious experiments, measured the rate at which sugars will diffuse into the plaque, the rate at which lactic acid will diffuse from the plaque, and the resultant hydrogen ion concentration. These experiments have been performed both *in vitro* and *in vivo*. Furthermore, the buffering capacity of the plaque material was determined. From the data thus secured calculations were made concerning the changes in acidity of the plaque material after a glucose rinse. The data obtained from the experimental procedure were compared with the calculated values and were found to be essentially in agreement.

On the basis of the diffusion theory, the concentration of the diffusable materials is one of the prime variables. It would be well if this work were extended to cover more than the one concentration used in these experiments. However, the experiments herein reported were well conceived, properly executed and clearly written. The book is one that should be read by all research workers in the field of dental caries and should be of considerable interest to the practicing dentist.

L. S. Fosdick

THE NEUROSES—DIAGNOSIS AND MANAGEMENT OF FUNCTIONAL DISORDERS AND MINOR PSYCHOSES

By Walter C. Alvarez, M.D. First edition. 667 pages. Index. Price $10. Philadelphia, W. B. Saunders Co., 1951.

Here is a down-to-earth textbook, not couched in psychiatric terms. It is written by an outstanding internist and represents the result of 45 years' experience of clinical observation based on sound neurophysiologic principles. Dr. Alvarez's sympathetic understanding and humane approach to patients' functional disorders and psychoses may well be an example for all practicing physicians to follow.

The author has expended much effort and accomplished a greatly needed and worth while task, with extremely gratifying results. This attractively bound volume describes the methods used by the author for recognizing nervous, neurotic or slightly psychotic persons, and for diagnosing the many functional syndromes from which they suffer. Even in this day of medical advances, there are still too many physicians who have little or no insight into the need for a better recognition of neuroses and minor psychoses. Under the heading of treatment are chapters on the handling of nervous patients, the art of convincing them that their trouble is a neurosis, and the art of teaching them what to do to help themselves. An interesting chapter on the psychosomatic features of the several specialties is included.

The volume is a timely contribution to medical literature. The material has been well chosen. The enormous amount of work involved in compiling the references alone stamps the author as a scholar of the first rank. He is to be commended on his use of simple, clear and understandable language. Although written primarily for the physician and medical student, there is a wealth of knowledge which the alert dentist may derive from its contents. The book is well printed, adequately indexed with a comprehensive bibliography.

E. Alan Lieban

PHARMACOLOGICAL BASIS OF PENICILLIN THERAPY

By Karl H. Beyer, Ph.D., M.D. First edition. 224 pages with 37 illustrations. Index. Price $4.50. Springfield, Ill., Charles C Thomas, 1950.

All dentists using penicillin should have this book, familiarize themselves with its contents, and refer to it frequently. The print is easily read, the table of contents and index have been organized and arranged for quick reference, and the figures are well reproduced. Each chapter is headed by a brief, but complete, summary of the text and is ended with pertinent references.

The book reviews the pharmacology, the mode of action, the effects of repository preparations, and the excretion of penicillin. The first section on pharmacology deals with the various penicillins, their characteristics, assay, antibacterial activity, and absorption after administration by routes other than parenteral. The second section is concerned with the levels of penicillin after parenteral administration.

Allergic reactions are an important phase in penicillin therapy. Dr. Beyer warns against superficial topical application of penicillin because of its sensitizing potentiality. He states, ". . . it would seem rational to exclude penicillin from most topical uses that can be handled by other means." Since this conclusion appears to be based on cutaneous application, the question of sensitization following application to oral tissues is not answered.

The mode of action is used as a basis for discussing the principles of therapy. The experimental basis for use of repository dosage in contrast to daily dosages of water-soluble salts is discussed. The information on excretion of penicillin and use of caronamide and benemid to delay excretion follows logically after dosages.

Penicillin is the drug of choice in prophylaxes and treatment of most oral conditions involving bacteria. Knowledge of the fundamentals of penicillin and its action is essential to intelligent administration.

Ned B. Williams

HANDBOOK OF PEDIATRIC MEDICAL EMERGENCIES

By Adolph G. DeSanctis, M.D., and Charles Varga, M.D. First edition. 284 pages with 51 illustrations. Index. Price $5. St. Louis, C. V. Mosby Co., 1951.

Gradual growth of this practical volume from the status of a brochure prepared for use by the resident staff and physicians taking postgraduate courses at the New York University-Bellevue Medical Center to its present book size is described in the introduction. It is emphasized that the limits suggested in the title are respected, and that attention is directed almost exclusively to therapy. However, important symptoms and signs of the various emergencies are included because it is recognized that proper treatment may at times be difficult if the cause of the emergency is not identified accurately.

Although the theme is pediatric, as a matter of fact many of the measures are applicable at all ages. Among these may be mentioned artificial respiration, treatment of burns, nosebleed, shock, animal bites, hiccough, and hemorrhage, management of various types of poisoning, and care of drowning victims. It might almost be said that in many respects the book is a "super" first aid manual, providing technical information of value at the professional level of dentistry and medicine.

Other chapters deal with care of the premature infant, respiratory, gastrointestinal, neurologic, genitourinary and cardiovascular emergencies, and there is one on technics including vein puncture, lumbar and subdural tap, tracheotomy, hypodermoclysis, gastric lavage and oxygen therapy. The book contains 51 instructive illustrations. An appendix presents an extensive list of commercial poisons, poisons found in household articles, and a conversion table for preparation of solutions as well as a list of physical and chemical constants of body tissues and how they may be altered.

W. W. Bolton

INDUSTRIAL HEALTH AND MEDICAL PROGRAMS

By Margaret C. Klem, Margaret F. McKiever and Walter J. Lear, M.D. First edition. 397 pages. Index. Bibliography. Price $1. Washington, D. C., Superintendent of Documents, U. S. Government Printing Office, 1951.

This reference book on health and medical programs for industrial workers has been prepared to meet the need for a compilation of published material on the subject. The compilation is primarily intended for the convenience of individuals responsible for industrial health programs such as company executives, medical directors, trade union leaders, public health officers, and specialized personnel who work in the field of industrial health. No original items are included in the book.

The text provides background information about industry, working population, health of the worker, and historical developments in the field of industrial health. One section describes plant health and medical services and the type of personnel employed.

The final sections provide information on prepayment medical care plans, state disability insurance programs, and professional research and educational organizations engaged in industrial health activities.

One chapter is devoted to plant dental services. This chapter includes some principles for the establishment of plant dental services as set up by the former Committee on Dental Economics of the American Dental Association. Included also are descriptions of existing industrial dental services in large and small plants.

Another chapter deals with qualifications and duties of dental personnel and the required ratio of this personnel to plant employees.

This text is a must for the library of dental personnel working in the field of industrial health.

Frank C. Cady

NUTRITION AND CHEMICAL GROWTH IN CHILDHOOD, VOLUME III, CALCULATED DATA

By Icie G. Macy, Ph.D., Sc.D. 713 pages. Cumulative index. Price $2.00. Springfield, Ill., Charles C Thomas, 1951.

This is a compilation of original data accumulated in the studies of nutritional and chemical growth of children. There is serial data for individual subjects on intakes, absorptions and retentions on a daily basis. Thus growth patterns of individuals are defined. The data indicate clearly that a child does not react in conformity with a theoretical average. Study of the sequential data in this volume will make it evident that we can no longer rely on mass accumulation of short time studies to adequately portray individual trends. More longitudinal studies of individuals are necessary, rather than additional mass evaluations.

The data included in the volume are valuable to anyone whose research deals with child development. It is the third part of a series of three volumes on the subject. The three volumes are contiguous with respect to paging, permitting a cumulative index of material in each volume, with entries referring only to page numbers. All information regarding an individual child is accessible under a single entry.

Dorothea F. Radusch

COMMUNITY HEALTH EDUCATOR'S COMPENDIUM OF KNOWLEDGE

By Clair E. Turner, A.M., Ed.M., D.Sc., Dr. P.H. 266 pages with 37 illustrations. Index. Price $3. St. Louis, C. V. Mosby Co., 1951.

"A handbook to help the Health Educator check principles, possibilities, and procedures in democratic action for health promotion." This statement which appears on the flyleaf of the book accurately sums up the contents and purpose of the publication. Certainly this little book contains a wealth of practical material of special value to the person, trained or otherwise, who is just entering the field of health education. It is likewise of value to the more experienced health educator as a reference book. As is indicated in the title of the book it is strictly a "compendium." No unnecessary material is included. The average individuals attempting to do health education do not want to wade through a great quantity of theory. They want and need facts, helpful suggestions and practical demonstrations. This need is met by Dr. Turner's book. It should prove of great help to all who are attempting to influence public opinion or establish better health practices.

It seems most unfortunate that the publishers chose to bind this book in such a way that the table of contents becomes a part of the inside cover. This error cheapens the appearance of the book and conveys an unfavorable impression.

H. Shirley Dwyer

HEALTH SERVICES AND SPECIAL WEAPONS

U. S. Civil Defense. 260 pages. Index. Price 60c. Washington, D. C., U. S. Government Printing Office, 1950.

This manual presents the functional responsibilities for civil defense health services and special weapons defense in time of war. It provides a program for the detailed development of state and local civil defense health service units. In the book these services are coordinated with other civil defense functions such as firefighting and reserve service. The text stresses the principle that civil defense plans are the responsibility of civilians and their civil government, Federal, state and local.

This volume outlines the function, responsibilities and organization of all civil defense health service, including the special duties of the key people involved, physicians, dentists, nurses and aids.

Developments in atomic, biological and chemical warfare have created a need to devise new civil defense plans. These situations and problems are presented in the chapter devoted to special weapons defense.

Of interest to dentists are the responsibilities and functions allotted to them by the civil defense planners which are outlined in this book. The principal place of the dentist is in the first-aid station.

The major functions of the first-aid stations consist of screening casualties, arresting of hemorrhage, treating shock, relieving pain and transporting severe cases to the hospital. Personnel of the first-aid station are a physician, dentist, nurses, pharmacist, first-aid workers, clerks and litter bearers. In the absence of the physician, the dentist is in charge of the first-aid station. Other dentists and oral surgeons are assigned to hospitals.

In view of the important functions and responsibilities allocated to dentists in the civil defense program, it is essential that all dentists volunteer their services to their local civil defense organization.

Frank C. Cady

THE PHYSIOLOGY OF TISSUES AND ORGANS

By Douglas H. K. Lee, M.D., M.Sc., D.T.M. 159 pages with 30 illustrations. Index. Price $4. Springfield, Ill., Charles C Thomas, 1950.

In this small book the author attempts to smooth the way for the student of physiology. The older, conventional method of presenting the subject (systematic physiology) the author regards as "justified neither in ethics nor in the results it achieves." By this "the student is flung into the deep waters of systemic physiology and defied to swim out" (or, perchance, to sink?).

The outstanding characteristic of life, which differentiates it sharply from the inanimate world, is organization; by this the functions of the various organs are coordinated and integrated. Admittedly, this close interrelation makes the study of physiology somewhat difficult. To avoid this, the author introduces a preliminary course of study in which the various organs are discussed separately, grouping them with respect to their individual function. For example, chapter 1 of Part II is devoted to "Absorption Organs," namely, the alimentary canal, lungs and skin; chapter 6 treats of "Excretory Organs," including the kidneys, lungs, liver and large bowel. These specific functions are discussed without considering their relation to the body as a whole, or the influence other organs have on them or the methods for governing and controlling them. According to the author these topics should form the subject matter for another course of study for which another textbook (presumably a standard textbook of physiology) is required.

This preliminary course is aimed at taking the hardship out of the study of physiology. Whether this is superior to the conventional method remains to be seen.

The unifying principle of organization, which the author has zealously striven to eliminate, serves, it seems to the reviewer, to stimulate and maintain interest. Few, if any, phenomena in the universe arouse one's sense of wonder and amazement as does the exceedingly great delicacy and intricacy of the interrelationship of the many diverse bodily structures and the accuracy with which the activity of each organ is governed to meet the ever changing needs of the body. Why deprive the student pursuing a course of study of this great pleasure and load him with a lot of disjoined and fragmentary pieces of knowledge?

The author's desire to come to the rescue of the overworked student has some merit. In future editions, we would suggest a little more continuity from topic to topic and from chapter to chapter. In many instances the text is obscure and involved. Simplicity of statement would add greatly to effectiveness and would increase the pleasure in reading.

W. D. Zoethout

EXODONTIA

By M. Hillel Feldman, D.D.S. Fourth edition. 290 pages with 322 illustrations. Index. Price $6.50. Philadelphia, Lea & Febiger, 1951.

This book deals primarily with the principles and technic of the extraction of teeth although many related subjects are discussed. The author, in addition to being an exodontist and an oral surgeon, is an anesthesiologist and devotes considerable space to the importance of the choice and administration of anesthetics available in exodontia. A section on chemotherapy gives the author's views on these important drugs. This chapter is well written and brings the reader up to date in this field.

A chapter on infections discusses two long-standing controversial questions. This author advocates the use of cold in certain instances for short periods, but favors heat for more severe infections. He advocates curettement following extraction of teeth associated with chronic periapical infection.

The greater portion of the book deals effectively with instruments, chair positions, operator positions and technics for the removal of teeth and roots as well as unerupted and impacted teeth. The technics advocated are explained in detail with many illustrations. Photographs, line drawings and roentgenograms are used to excellent advantage.

Positioning of incisions is shown in detail. The author favors the use of a bibevel type of drill for removal of bone. He believes this method in his hands is "kinder to tissues" than the mallet and chisel. A chapter on "Dental Malpractice and Jurisprudence" by Michael A. Hayes gives pertinent information.

In general this book is exceptionally well written. Every statement is carefully worded and can be easily read. The material is well chosen, well organized and well presented. It is printed on an excellent grade of enameled stock.

Minor differences of opinion regarding certain procedures are to be expected. However, the material presented and the procedures advocated are sound and this book represents a real accomplishment in transmitting information to the dentist in general practice who does extraction and minor oral surgery.

Paul C. Salisbury

Current Literature

THE FLUORESCENCE PHENOMENON OF THE TONGUE

W. Tomaszewski and M. D. Poznan. Brit. M. J. No. 4698:117, January 20, 1951.

When the mouth is viewed under ultraviolet light screened with Wood's glass, a reddish-orange fluorescence often is visible on the dorsum of the tongue and sometimes on the teeth. This fluorescence is caused by the production of porphyrins by oral microorganisms. However, this fluorescence has not been adequately studied in relation to the various changes in the tongue that are known to result from nutritional deficiencies.

Over 400 patients were examined for fluorescence of the surface of the tongue and teeth. An ordinary ultraviolet lamp with Wood's glass was used. Diseases characterized by changes in the tongue were specially selected and, for comparison, examinations were made in various other diseases and in a number of healthy people of different ages. In some instances, antibiotics, vitamins and chemotherapeutic agents were given in order to investigate the influence of these substances on the fluorescence. Fluorescence was found in the majority of the healthy individuals examined.

Absence of fluorescence becomes more frequent with increasing age. It was absent in 53 per cent of people over 80, but it was absent in only 11 per cent of the children. In certain diseases—pernicious anemia, sprue syndrome and vitamin B deficiencies—there is a higher incidence of absent fluorescence. The vitamin B group and iron have some influence in the restoration of fluorescence. Antibiotics destroy fluorescence by their action on microflora. The clinical significance of this phenomenon is not yet known. Its possible connection with nutritional factors has been discussed.

W. A. Nolte

ORTHODONTICS AND PERIODONTAL DISEASE

Clifton O. Dummett. J. Periodont. 22:34, January, 1951.

The author reviewed the literature that correlates orthodontics and periodontia. He emphasized the relationships between orthodontia and experimental pathology in periodontal research, orthodontics and the etiology of periodontal disease, orthodontics and the treatment of periodontal disease.

It is his opinion that the incidence of periodontal disease caused by incorrect orthodontic procedures could be reduced and a greater number of patients with periodontal disease could be treated by orthodontics if there was more cooperation between the orthodontist and the periodontist.

Erwin M. Schaffer

THE AETIOLOGY OF PARODONTAL DISEASES

A. J. Held. Internat. D. J. 1:75, September, 1950.

The general pathological processes concerned with periodontal disease include inflammation, regression or degeneration and hyperplasia. Such processes may occur alone or, more commonly, together. Weski used this consideration as a basis for classification, examples of which follow, respectively; gingivitis and periodontitis; periodontosis and senile atrophy; hyperplastic gingivitis. Local factors, often called exciting factors, were not considered in this paper.

Individual predisposition to periodontal disease was discussed in relation to the "constitutional factor," body type, heredity, and function, or lack thereof, during development and growth of the periodontium. The minimal amount of definitive knowledge concerning these factors was emphasized.

The "osteodystrophic factor," concerned with bone loss throughout the body due to nutritional or endocrine imbalances was illustrated and discussed in relation to paradontosis (sometimes called "senile atrophy")—defined as alveolar dystrophy beginning with resorption of the alveolar bone. A distinction was made between the latter condition and periodontosis—a dystrophy originating in the periodontal membrane or possibly cementum.

Several theoretical considerations of previous authors are described and an attempt is made to define the mechanism whereby the inflammatory process may contribute to generalized alveolar loss. Histamine, adrenalin, insulin, bacteria and toxins are considered here.

Traumatic occlusion is considered as a predisposing factor, and the point is made that a balance must exist between masticatory

function of the teeth on the one hand and the periodontium on the other. Normally, this balance is maintained through attrition of the teeth. In the absence of the balancing factor, attrition, trauma to the periodontium and periodontal disease may result. There is no known isolated etiological factor that is responsible even in part for large numbers of cases of any form of periodontal disease. Too little is known about all these factors and it is conceivable that all of them may be influential in any one case, so that the problem is very complex.

David F. Mitchell

THE CARIES-PRODUCING EFFECT OF SIMILAR FOODS GROWN IN DIFFERENT SOIL AREAS

Abraham E. Nizel and Robert S. Harris. New England J. Med. 244:361, March 8, 1951.

Four groups of weaning hamsters, each consisting of 35 animals, were fed the Hoppert, Webber and Canniff diet for 17 weeks. The corn and dried whole-milk powder used in the construction of the diets were varied among the groups as follows: Group A, New England corn and milk; Group B, Texas corn and milk; Group C, New England corn and Texas milk; Group D, Texas corn and New England milk. The number of molar teeth involved with caries and the number of tooth surfaces affected in Group B were approximately 50 per cent less than in Group A, C, and D. It is suggested that New England food possesses a caries-promoting factor which outweighs any caries-inhibitory property of Texas corn and milk.

W. D. Armstrong

A FURTHER STUDY OF THE TEETH OF 5-YEAR-OLD CHILDREN IN RESIDENTIAL HOMES AND DAY SCHOOLS

May Mellanby and Helen Mellanby. Brit. M. J. No. 4697, 51, January 13, 1951.

A study of the teeth of two different groups of children, each group representing a different economic class, is reported. One group includes 542 children from residential nurseries and schools administered by state or voluntary groups. These children came from broken homes, unsuitable homes or from unmarried mothers. The other group included 560 children in private schools who came from well-to-do parents.

The teeth of these two groups of children were compared as to amount and frequency of hypoplasia and amount and frequency of caries. This study was, in so far as possible, an exact duplication of a study carried out in 1945 involving children of the same age, 5 years. The standards of measurement of hypoplasia and caries were based on clinical methods of examination without benefit of dry surfaces or roentgenograms. Hypoplasias were estimated with a right angle probe, classifying the comparative roughness of the labiobuccal surfaces. Caries was estimated by means of a clinical examination with explorers.

From the results of these examinations and the data accumulated it was found that the average amount of hypoplasia was higher in the underprivileged children (residential home) as compared to the privileged children (private schools); the incidence of caries was less in the underprivileged children in spite of the apparently poorer tooth structure, although in both groups the liability of the teeth to caries was greater in the teeth with the higher degree of hypoplasia. However, for each grade of structure the residential home children had less caries than others.

In comparing this study with the study made in 1945, it was found that the results agreed in comparative values throughout. The 1950 study showed a greater evidence of dental treatment than the 1945 study. The difference between this study and the 1945 study was that the group of children from the residential homes (underprivileged children) showed a significant decrease in hypoplasia and, concurrently, caries incidence, while the group of children from the private schools (privileged children) showed little change. Suggestions are made to account for the differences found in both structure and caries incidence between residential home and private schools, and for the change occurring between 1945 and 1950.

"It is a challenging thought that, on the whole, children brought up in orphanages and other public institutions have a better chance of remaining free from caries (at least up to 5 years of age) than children of the same age brought up in private families."

Gordon H. Rovelstad

THE GINGIVAL STRUCTURES IN DIABETES MELLITUS

Harold G. Ray and Balint Orban. J. Periodont. 21:85, April, 1950.

This is the report of a study in which histological examination of gingival tissues taken by biopsy from patients with known diabetes mellitus are compared with those from nondiabetic patients.

The literature on histological findings in the gingivae in diabetes is limited to two papers: Ziskin and others, reporting on experiments on 19 human subjects felt there were characteristic findings, and Glickman reporting on experiments on 103 albino rats found no significant differences between the animals with alloxan diabetes and the control group.

The subjects for the present study were 30 adults under treatment for diabetes mellitus in the metabolic clinic of the University of Illinois Research and Educational Hospital who were compared with 30 nondiabetic inmates of the Chicago State Hospital at Dunning, Illinois. The diabetic patients ranged in age from 25 to 71 years, while the others ranged from 24 to 72 years. In addition, 6 juveniles under treatment for diabetes mellitus in the pediatric clinic of the Chicago State Hospital were compared with 4 nondiabetic patients from the same hospital. Six juvenile patients with diabetes mellitus from the pediatric clinic of the University of Illinois Research and Educational Hospital also were included in the study. The juvenile group ranged in age from 4 to 12 years. Biopsy specimens were interdental papillae obtained under local anesthesia, fixed in Zenker's formalin or 95 per cent alcohol and imbedded in paraffin. Labiolingual sections were stained with hematoxylin-eosin, Mallory's connective tissue stain, Gomori's, Bauer-Feulgen's, and Bests's carmine stain for glycogen.

Clinic findings showed no diabetic patients free from gingivitis but no correlation between control of the diabetic state and the severity of the gingivitis was noted.

Histologic findings showed that 64 per cent of the diabetic and 27 per cent of the nondiabetic patients had lack of stippling of the epithelial surface. The nondiabetic patients showed consistently more hornification of the attached and free gingiva. The diabetic patients seemed to have a slight increase in the incidence of vacuolization of the cytoplasm as compared with the nondiabetic. The incidence of intranuclear vacuolization of the epithelial cells in the germinative layer was greater in the adult diabetic patients but was not seen in any of the juvenile patients. Although the adult patients showed no difference, all juvenile diabetic patients showed lymphocytic invasion of the epithelium compared to only one of the nondiabetic juveniles showing the same invasion. There was no difference observed in the glycogen content of the biopsies. All specimens showed inflammation of the free gingiva while in the attached gingiva the severity of the inflammation varied with the severity of the gingivitis as seen clinically. Connective tissue changes were found more often in the diabetic patients (43 per cent) than the nondiabetic (23 per cent). There was no difference in the frequency of finding groups of dead plasma cells in areas of chronic inflammation or of foreign bodies of different natures in diabetic and nondiabetic patients. The significance of these findngs is discussed.

It is concluded that there are no characteristic changes in the gingiva related to diabetes although certain changes are listed which appear to be accentuated in diabetic patients and may represent an increased tissue reaction to local irritation.

William A. Peterson

USE OF PRECISION CONES IN PERORAL IRRADIATION

S. Gordon Castigliano and David M. Sklaroff. Am. J. Roentgenol. 64:968, December, 1950.

The use of individualized intraoral cones in irradiating carcinoma of oral lesions is described. The accessibility of the irradiation by this technic to the intraoral lesions enhances the treatment. These cones are prepared individually for each lesion so that all therapy may be applied directly to the intraoral carcinoma. The cones are made in different shapes and applied to the standard conical cone attached to the x-ray machine. The cone itself fits in and about the lesion and thereby protects the surrounding normal tissue. With this technic, the tumors of the tongue, buccal surface, tonsil, gingiva and the hard and soft palate are in a sense converted into surface lesions and can thus be treated in a manner similar to skin tumors. Since deeper layers of the skin do not need to be penetrated in this type of treatment, radionecrosis has been eliminated by the use of intraoral cones. By this technic normal surrounding tissues of the oral structures have been protected also.

With this technic it has been possible to increase the dosage for tumor and thereby to some extent provide tumor sterilization. It calls for an adaptation of lead plate to and about the lesion in the form of a tube. The end opposing the lesion is trimmed carefully and the edges are smoothed. The free end of the lead tube so created is then attached to the normal extension of the cone of the x-ray machine. In application to the patient, this preformed lead tube is first inserted into the oral cavity opposing the lesion and then the x-ray head is brought down and connected to this lead cone. Scattered radiation and undesirable pharyngeal irradiation in the peroral treatment of tonsillar and other

more posterior lesions are eliminated by this method. The confinement of the irradiation to the particular lesion is the important fact in this technic.

L. A. Varteressian

DENTISTRY IN THE BRITISH ARMY

H. J. Higgins and S. H. Woods. U. S. Armed Forces M. J. 2:135, January, 1951.

Dental service in the British Army did not exist until 1901, when four contract dental surgeons were employed. No dental surgeon accompanied the British Expeditionary Force to France in 1914, but 850 were on duty at the time of the Armistice. The Army Dental Corps was regularly organized in 1921 with a representative in the War Office.

The present organization of the Royal Army Dental Corps provides for one major general, 12 colonels, and dental officers in the ratio of 1 to 1,150 personnel. Operating room assistants and technicians are also provided.

The dental standards for recruits until 1865 required incisors and cuspids sufficient to tear open the cartridges with the teeth. An "Eleven point standard" (approximately 50 per cent masticating efficiency) was adopted in 1921, but all dental standards for recruits were abandoned during World War II.

Charles W. Freeman

STUDIES IN THE ETIOLOGY OF PERIODONTAL DISEASE

Maxwell Karshan. J. Periodont. 22:23, January, 1951.

In this study 77 patients with periodontosis, 59 patients with periodontitis complex, 39 patients with advanced marginal periodontitis and 51 patients in a control group (individuals free from periodontal disease) were given a comprehensive dental examination, a physical examination, blood chemistry, blood count, basal metabolism, dietary record, Kline test, vaginal smears, urinary determinations of neutral 17-ketosteroids, estrogen, thiamin, riboflavin and methylnicotinamide, and salivary determinations of calcium, phosphorus, protein and pH.

In the blood analysis more deviations from the normal were found in the persons with periodontosis and periodontitis than in the control group, suggesting that one or more systemic conditions are associated with these diseases in many of the subjects studied. No clear distinction in blood chemistry was found between the persons with periodontosis and those with periodontitis. The physical examinations did not reveal a common systemic condition responsible for the disease.

Plasma vitamin C was low in a large percentage of the persons with periodontosis in spite of an adequate intake of this vitamin. This may mean that there was some interference in the utilization of this vitamin.

Salivary analysis indicates that the calcium and phosphorus content of saliva is related to the tendency to form calculus.

Erwin M. Schaffer.

EFFECTS OF AIR POLLUTION ON ORAL STRUCTURES

James M. Dunning. Arch. Ind. Hyg. & Occupational Med. 2:137, August, 1950.

Some 42 agents have been recorded that produce effects on the oral structures of which 18 have been dusts and 12 gases. Some cause chemical damage (associated with some process either of the teeth themselves or of the soft tissues surrounding them); some physical damage (staining or abrasion of the teeth). Most agents produce far greater effects on already diseased structures than on healthy ones. Because of this, it is to the interest of industry to help workers free themselves from nonoccupational dental diseases. Industrial hazard to the oral structures is seldom great when the structures are in a healthy condition. The oral manifestations of occupational dental disease may easily be noted in the course of dental examination and the dentist can easily become a scout for the medical team in recognizing these manifestations, and at the same time the dentist on the team can appraise the level of nonoccupational disease in the area.

Carlos Weil

THE NATURE OF FACIAL PROGNATHISM AND ITS RELATION TO NORMAL OCCLUSION OF THE TEETH

Arne Björk. Am. J. Orthodont. 37:106, February, 1951.

The occurrence of malocclusion depends not merely on changes of a local nature which are confined to the dental arches or to the dental part of the jaws. It is evident that malocclusions may be regarded to a considerable extent as symptoms of more generally active factors which determine the formation of the facial skeleton and the skull as a whole.

Lateral x-ray exposures of the head were taken in the course of an examination covering 603 Swedes, of whom 281 were male adults and 322 were 12 year old boys. A statistical

analysis of this material was published in 1947. The same x-ray method was also employed by the author in an examination of 400 Bantus, carried out in Southern Rhodesia in 1948.

In addition, x-ray exposures of crania were taken, representing different races and also anthropoids. On the basis of the material gathered in this manner brief description is given of the normal variations in the facial build and those facial measurements which have been found especially useful for the purpose of diagnosing the malocclusion of the teeth by means of x-ray photography.

Prognathism is the characteristic which determines the general shape of the facial profile. By prognathism is meant the prominence of the facial skeleton in relation to the brain case according to the anthropologic definition. Prognathism is therefore a biologic conception which is not governed by any specific method of measurement. In craniometry the degree of prognathism is usually determined by the angle formed between the Frankfort plane and a profile line from the root of the nose, nasion, to the alveolar process in the maxilla, prosthion.

As the roentgenogram provides a direct measurement of the shape and size of the cranial base, it is preferable to measure the prognathism from the cranial base rather than from the Frankfort plane. From a clinical point of view the most useful measurements obtained from x-ray exposures of cases of sagittal malocclusion (maxillary or mandibular overjet) are the following: (1) the difference in basal prognathism, (2) the difference in alveolar prognathism and (3) the inclination of the upper and lower incisors.

William F. Ford

TIME OF ERUPTION OF PERMANENT TEETH AND TIME OF SHEDDING OF DECIDUOUS TEETH

H. H. Stones, F. E. Lawton, E. R. Bransby and H. O. Hartley. Brit. D. J. 90:1, January 2, 1951.

This work is the result of a dental survey in the National Children's Home at Frodsham, England, from September, 1942 to September, 1946. The data were computed into four primary tables and two general histograms, the latter showing variations in times of shedding deciduous teeth and also showing variations in times of eruption of the permanent teeth for both boys and girls. Stones, Lawton, Bransby and Hartley reported in 1949 that this survey was in progress. The average times of the shedding of the deciduous teeth and the eruption of permanent teeth are presented. The average time of shedding and eruption of individual teeth is computed with respect to the average age groups of boys and girls. Usually the deciduous maxillary cuspids and incisors are shed earlier than corresponding mandibular teeth. With respect to the molar region, the condition is generally reversed. Also there is a tendency for the permanent teeth of the right side to erupt a bit later than those of the left side. Boys shed their deciduous teeth later than girls. Substantial agreement with the table of Logan and Kronfeld, as modified by McCall and Schour, is manifested. Also there is agreement with Cattell and her work of 1928 in respect to the fact that girls show a consistently more advanced dentition than do boys.

O. B. Wiswell

JOURNAL OF ORAL SURGERY

April 1951

FIBROUS DYSPLASIA OF BONE: MONOSTOTIC AND POLYOSTOTIC FORMS

Myron Kaufman, p. 93.

Only theories concerning the etiology of the disease have been advanced. Lichtenstein and Jaffe believe that the condition represents a congenital anomaly of development resulting in this peculiar type of tumor-like formation. Fibrous dysplasia may be monostotic or polyostotic with the former being more common. The disease manifests itself in two phases, mild and severe. The milder condition usually occurs in older children and adults, the more severe condition usually appears in infants and young children. Extraskeletal manifestations of the disease, such as pigmentation of the skin, premature sexual maturation, premature skeletal growth and maturation, hyperthyroidism, and cardiovascular anomalies, are more often seen in cases of more severe and extensive bony lesions, usually being absent in the milder forms.

The osseous lesions usually provide the cardinal clinical symptom. Local pain and tenderness may be present if the bone involved is the site of an expanding tumor or pathologic fracture. In most instances, the lesion first manifests itself to the radiologist as a discrete area of rarefaction resembling a cystic condition, but it is not a true cyst. Occasionally, several lesions may become confluent and thus give a diffuse rarefied appearance to a

greater portion of the affected bone. Localized zones of osteosclerosis are frequently seen in association with the radiolucent areas or possibly even alone. The lesions seen in the frontal bone, sphenoid, ethmoid, and maxillary bones differ from lesions seen elsewhere since they are usually osteomatoid in nature; that is, extremely dense and thick, resembling a leontiasis ossea. Any bone may be involved, although lower extremities are most frequently affected.

The process of osteoclastic bone resorption starts in the haversian canals and spreads into the surrounding cortical and subcortical areas. Only when a lesion or lesions are causing difficulty should there be any treatment and simple curettage of monostotic lesions is the treatment of choice. No treatment is indicated where lesions are not severe or disturbing.

In the severest forms of the disease, where extraskeletal and glandular abnormalities occur in early childhood, the life expectancy is sometimes shortened. However, the majority of patients, particularly where only one bone is affected, can look forward to a normal life expectancy with no particular disturbance to usual activity.

SPONGE BIOPSY IN THE DIAGNOSIS OF CANCER OF THE MOUTH

Sidney A. Gladstone, p. 104.

With respect to frequency, cancer of the mouth follows directly after cancer of the breast. Of the patients treated for cancer of the mouth about one in four will be living five years after treatment. If the disease is diagnosed when the lesion is less than 2 cm. in size, the five year cure rate is doubled. Surgical biopsy by means of scalpel or biting forceps method is not entirely free of the hazards of pain, hemorrhage, or infection. To a large extent these difficulties may be circumvented by the method of sponge biopsy recently introduced.

A small piece of cellulose sponge is rubbed firmly over an ulcer or mucous membrane to absorb tissue juice, suspended cells and suspended particles of tissue. Sponge and absorbed material are promptly placed into a small bottle of 10 per cent Formalin and sent to the pathologist. He prepares the sponge as he would a tissue block for paraffin embedding, cutting and staining prior to microscopic examination. Under the microscope the network of the sponge with the small particles of tissue as well as cellular elements in the interstices and on the surface are visible. The author has introduced a sponge biopsy forceps, the longer limb having a diamond shaped plate to support the sponge from behind during application and rubbing; the shorter limb has a corrugated surface for dislodging tissue particles from ulcerating surfaces hardened by granulation tissue or covered by a necrotic or keratinized layer.

OSTEOMYELITIS OF THE MANDIBLE IN THE NEWBORN

Robert Zugsmith, p. 110.

Osteomyelitis in the newborn occurs in both the mandible and the maxilla and may be of spontaneous origin or the result of trauma during the course of a difficult delivery. In cases where delivery is uneventful and injury can be ruled out, the cause has not been determined, although several authors are of the opinion that the infection is carried by the blood stream with localization occurring at a center of ossification—usually near the apex of the cuspid root in the maxilla.

In April 1931, an infant nine weeks old, with osteomyelitis of the mandible was referred to the author by the pediatrician in charge of the case. Fortunately, continuous contact with the patient was maintained until 1949, a period of 18 years. A detailed report that includes a consideration of both pathology and therapeutics was possible, and in addition, a basis for a reliable prognosis in similar cases was provided.

In cases of osteomyelitis of the jaws in infancy, bone and permanent tooth development may be normal in spite of extensive destruction of the osseous tissue and deciduous teeth, and no facial deformity will result.

PENICILLIN TABLETS IN ORAL SURGICAL PROCEDURES

Sidney Epstein and Raymond R. Kauffman, p. 115.

This paper reports the use of pure crystalline penicillin G in the treatment of 250 patients requiring exodontia, removal of infections in the mandible or maxilla and apicoectomies in endodontia. The tablets used are composed of pure penicillin without any binder or additive. They are approximately the size of a hypodermic tablet with a diameter of approximately 1.5 mm. Each tablet contained 50,000 units of crystalline penicillin G salt. An average of two tablets was placed in the alveolus of each tooth. In instances of multirooted teeth as many as four or five tablets were placed. The greatest number of tablets placed in an operative wound was 18. This would be an equivalent of 900,000 units.

One of the most interesting observations was the patients' comments of amazement at their freedom from pain and the little discomfort experienced. Objectively there was very little

postoperative swelling. There was a minimum of trismus particularly in those cases when third molars were removed. There was no apparent interference either with bleeding time or with the formation of a normal clot. There was no evidence of sensitivity to the drug. However, the problem of sensitivity is one that must be considered further because it presents a possible hazard in the routine use of the drug.

The implantation of penicillin in the alveolar bone following dental extractions or surgery is absorbed at a significant rate to establish a temporary blood level of penicillin.

HYPERPLASIA OF THE MANDIBULAR CONDYLE

Otto Gottlieb, p. 118.

Condylar hyperplasia is taken to mean a progressing, unilateral or bilateral hyperplasia of the mandibular condyle, of unknown etiology, causing facial deformity and typical malocclusion. As a rule, the onset of condylar hyperplasia is insidious. It usually develops in the course of some months up to several years in healthy individuals towards the end of the second decade of life. It may be attended with pain, occasional subluxation and crepitation of the jaw, but often there is no discomfort worth mentioning and strangely free jaw motion. The facial deformity is characterized by deviation of the chin away from the enlarged condyle. In most instances there is a forward projection of the chin, and lowering and prominence of the angle of the jaw on the affected side. Correspondingly, there will be the characteristic sign of malocclusion consisting in mesial occlusion, open bite on the affected side and cross-bite on the other side. The roentgenographic signs are always enlargement of the condyle or the condyle and the mandibular neck.

Four methods of surgical treatment have been employed: (1) Condylectomy is the most common method. (2) A less common, but still widely used, procedure is bilateral osteotomy of the mandibular rami followed by horizontal shifting and re-establishing of normal occlusion. (3) Ostectomy of the body of the mandible is a major undertaking and has been used in one case. (4) Local excision to reduce the prominence of the chin was used by Gillies during World War II. Condylectomy is the most rational procedure, and is employed if the condition is interpreted as being an independent, progressing growth of the condyle and in cases of severe pain. When a case of condylar hyperplasia is regarded as one of prognathic deviation of unknown cause, the rational procedure is the ordinary operation for mandibular protrusion, bilateral osteotomy of the mandibular rami.

EXTRACTION OF TEETH IN THE PRESENCE OF ACUTE INFECTIONS

Harold W. Krogh, p. 136.

The question of whether or not teeth should be extracted in the presence of acute infection has been controversial for many years. Many have preferred to postpone extraction until the infection localizes, the leukocyte count is raised and the natural defense mechanisms have been mobilized, whereas others have expressed themselves in favor of immediate removal of the teeth. The purpose of this discussion was to show that after analysis of more than 3,000 consecutive extractions, wherein immediate extraction was performed regardless of infection and any concurrent conditions, the general belief that teeth should not be removed in the presence of an acute infection is an erroneous one and that proper surgical technic, together with the use of the antibiotics where indicated, will produce no more complications, and generally less severe ones, than will extraction delayed until after treatment of the infectious process. That the complications following the extractions were few, seems indicative that this procedure is preferable to postponement of removal of teeth until the inflammation has subsided or the symptoms have abated.

Many patients do not seek immediate relief because they have been led to believe that extraction in the presence of infection is unsafe or that the dentist will refuse to extract until after subsidence of the symptoms. Extraction in the presence of submandibular swelling may present a dentolegal problem because of the attitude of both the laity and the profession. By classroom instruction and some textbooks the belief that extraction in the presence of an acute infection is contraindicated has been passed along without adequate clinical proof of its truth.

A series of 3,127 extractions is presented, in which operation was performed immediately, without regard to infections present or concurrent disease. A general anesthetic was employed in 90 per cent of the total 3,127 cases. Neither osteomyelitis nor septicemia developed in a single instance. Extraoral incision and drainage was necessary in only 3 instances following removal of acutely abscessed teeth. Immediate extraction is the treatment of choice for cases of acute abscesses.

Deaths

Andrews, Charles L., Costa Mesa, Calif.; Western Dental College, 1915; died May 28.

Apfel, Benjamin L., New York; College of Dentistry, New York University, 1922; died June 9.

Barton, William H., Mount Pleasant, Mich.; College of Dentistry, University of Illinois, 1923; died June 3; aged 51.

Black, Walter L., Algonac, Mich.; Department of Dental Surgery, College of Medicine, Detroit, 1903; died April 16; aged 72.

Burke, Harry G., New York; American College of Dental Surgery, Chicago, 1895; died June 2; aged 82.

Cahalan, John L., Kingston, Pa.; Dental School, Temple University, 1934; died June 7; aged 47.

Carson, Henry G., Nowata, Okla.; Western Dental College, Kansas City, 1905; died June 5; aged 68.

Chandler, Charles T., Wauwatosa, Wis.; Chicago College of Dental Surgery, Loyola University, 1896; died May 27; aged 79.

Cline, William R., Abingdon, Va.; School of Dentistry, Medical College of Virginia, 1920; died December 1; aged 58.

Colegrove, John A., Los Angeles; College of Dentistry, University of California, 1898; died June 12.

Craig, Alexander P., Gary, Ind.; Indiana Dental College, 1913; died June 5; aged 64.

Crago, John M., Carbondale, Pa.; School of Dentistry, University of Pennsylvania, 1900; died January 17; aged 72.

Crawford, Ronald A., La Mesa, Calif.; College of Dentistry, University of Iowa, 1916; died June 3; aged 56.

Curci, Lawrence F., Pittsburgh, Pa.; School of Dentistry, University of Pittsburgh, 1932; died May 17; aged 43.

Davis, William E., Indianola, Iowa; College of Dentistry, University of Iowa, 1947; died in April; aged 26.

Diffenbacher, William F., Spokane, Wash.; School of Dentistry, Western Reserve University, 1900; died June 12; aged 72.

Eldred, John., Chicago; American College of Dental Surgery, Chicago, 1891; died April 23.

Eldredge, J. Smallwood, Cape May, N. J.; School of Dentistry, University of Pennsylvania, 1892; died June 7; aged 79.

Follett, Frank E., La Fayette, Ind.; Chicago College of Dental Surgery, Loyola University, 1901; died May 27; aged 79.

Getty, Ross T., Port Huron, Mich.; College of Dental Surgery, University of Michigan, 1917; died May 30; aged 60.

Gilmore, William F., David City, Neb.; College of Dentistry, Creighton University, 1918; died June 20; aged 56.

Goodman, Abraham H., Brooklyn; College of Dentistry, New York University, 1904; died June 27; aged 78.

Gould, William M., Denville, N. J.; New York College of Dentistry, 1893; died June 16; aged 78.

Gunter, Newton C., Pueblo, Colo.; School of Dentistry, University of Denver, 1915; died May 28; aged 62.

Hawkinson, Alfred E., Litchfield, Minn.; College of Dentistry, University of Minnesota, 1897; died June 9; aged 77.

Hays, George S., San Antonio, Texas; Atlanta Dental College, 1914; died February 18; aged 59.

Hill, Alfred S., Boston; died January 27.

Hill, T. M., Little Rock, Ark.; Louisville College of Dentistry of Centre College, 1903; died May 29; aged 70.

Hirtle, Jerome E., Bath, Pa.; School of Dentistry, University of Pennsylvania, 1910; died June 8; aged 68.

Holbrock, Clarence J., Toledo, Ohio; Ohio College of Dental Surgery, University of Cincinnati, 1913; died April 11; aged 62.

Holland, Joseph F., Chicago; Chicago College of Dental Surgery, Loyola, 1902; died January 2; aged 75.

Hoodner, Francis A., York, Pa.; Baltimore College of Dental Surgery, University of Maryland, 1903; died May 4; aged 79.

Irving, Julius, Providence, R. I.; Dental School, Tufts College, 1907; died July 5; aged 64.

Johnson, Carl O., Denver; School of Dentistry, Washington University, St. Louis, 1906; died May 24.

Johnson, Floyd, Rigby, Idaho; Chicago College of Dental Surgery, Loyola University, 1929; died June 8; aged 59.

Johnson, Herbert T., Clairton, Pa.; School of Dentistry, University of Pittsburgh, 1924; died June 8; aged 53.

Kayler, Frederick J., Spokane, Wash.; St. Louis Dental College, 1905; died June 4; aged 71.

Kelly, Loren A., Watseka, Ill.; died April 7.

Kolm, Frederick F., La Salle, Ill.; Ohio College of Dental Surgery, University of Cincinnati, 1899; died May 1; aged 75.

Lightner, John T., Columbus, Ga.; Atlanta Dental College, 1903; died December 16; aged 76.

Lopez, Joseph L., Philadelphia; School of Dentistry, University of Pennsylvania, 1892; died February 1; aged 88.

Manson, David, Burlington, Vt.; School of Dentistry, University of Pennsylvania, 1900; died June 7.

Markus, Moe B., Philadelphia; School of Dentistry, University of Pennsylvania, 1923; died June 28.

McConkey, James C., Canton, Ohio; School of Dentistry, Western Reserve University, 1902; died June 17; aged 73.

McNulty, Frank B., Pittsburgh; School of Dentistry, University of Pittsburgh, 1919; died April 28; aged 59.

Michtom, Joseph S., Brooklyn; College of Dentistry, New York University, 1915; died June 21.

Miller, Jack R., Memphis, Tenn.; College of Dentistry, University of Tennessee, 1945; died June 3; aged 30.

Monroe, William D., Blue Ridge Summit, Pa.; Dental Department, George Washington University, 1895; died June 5.

Moon, William H., Pittston, Pa.; College of Dentistry, New York University, 1889; died January 24; aged 86.

Moore, Max., Hoboken, N. J.; New York Dental School, 1907; died June 21; aged 68.

Moore, Robert D., Roswell, N. M.; Western Dental College, Kansas City, 1932; died January 27; aged 42.

Passamaneck, Yale, Richmond, Va.; School of Dentistry, Medical College of Virginia, 1924; died May 23; aged 50.

Pearson, Maurice W., Laguna Beach, Calif.; School of Dentistry, Washington University, St. Louis, 1887; died January 2; aged 85.

Petrie, Raymond C., Johnstown, N. Y.; School of Dentistry, University of Buffalo, 1908; died June 10; aged 67.

Ramsey, Glenn F., Kenosha, Wis.; Milwaukee Dental College, 1902; died in March; aged 77.

Riddle, Austin W., Cowgill, Mo.; Western Dental College, Kansas City, 1919; died May 12.

Ridener, Aaron A., Williamsburg, Ky.; died January 4.

Rodosy, Adolph, Chicago; School of Dentistry, University of Illinois, 1901; died June 13; aged 78.

Sancton, Harry W., Rockaway Beach, N. Y.; died March 3.

Seiffer, Charles L., Adrian, Mich.; College of Dentistry, Ohio Medical University, 1905; died June 7; aged 70.

Shellington, James H., Lynn, Mass.; Dental School, Tufts College, 1903; died May 8.

Silver, Bernard H., Lancaster, Pa.; School of Dentistry, University of Pennsylvania, 1924; died June 8; aged 54.

Spencer, Roy L., Los Angeles; College of Dentistry, University of Southern California, 1904; died May 7; aged 73.

Stephens, Chauncy K., Fort Dodge, Iowa; died May 22.

Stephenson, James T., Williamstown, Ky.; School of Dentistry, University of Louisville, 1905; died November 23.

Sugarman, Louis L., Philadelphia; School of Dentistry, Temple University, 1917; died June 14; aged 61.

Thomas, John D., Dorchester, Mass.; Dental School, Tufts College, 1916; died in December.

Tiffany, Willard B., Clyde, Ohio; School of Dentistry, Western Reserve University, 1900; died June 22; aged 75.

Tillinghast, Charles H., Sag Harbor, N. Y.; Pennsylvania College of Dental Surgery, Philadelphia, 1898; died June 19; aged 79.

Van Aller, Harry G., St. Louis; School of Dentistry, Washington University, St. Louis, 1892; June 16; aged 83.

Williams, Edwin, St. Cloud, Minn.; College of Dentistry, University of Minnesota, 1915; died May 7.

Williams, Pleasant H., Ashland, Ky.; Ohio College of Dental Surgery, University of Cincinnati, 1905; died April 24; aged 72.

Windheim, Otto W., Chicago; Dental School, Northwestern University, 1913; died April 22; aged 61.

Winner, Anthony C., North Tonawanda, N. Y.; Baltimore College of Dental Surgery, University of Maryland, 1916; died June 2; aged 59.

Wood, Wilton E., Austin, Texas; Texas Dental College, Houston, 1939; died March 25; aged 36.

Woodworth, Earl J., Santa Monica, Calif.; School of Dentistry, University of Buffalo, 1896; died May 12.

Yocum, John P., Garden City, Pa.; School of Dentistry, Temple University, 1901; died March 4.

Zemsky, James L., New York; New York College of Dentistry, 1915; died April 9; aged 67.

Zilvitis, Matthew, Chicago; Chicago College of Dental Surgery, Loyola University, 1923; died May 11; aged 68.

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MEETINGS OF THE AMERICAN DENTAL ASSOCIATION

Ninety-Second Annual Session	Oct. 15-18, 1951	Washington, D. C.
Ninety-Third Annual Session	Sept. 8-11, 1952	St. Louis
Ninety-Fourth Annual Session	Sept. 28-Oct. 1, 1953	Cleveland

MEETINGS OF STATE SOCIETIES

State	Date	Place	Secretary	Address
Alabama	Apr. 14, 15, 1952	Birmingham	G. W. Matthews	1922 Tenth Ave., S., Birmingham 5
Alaska			J. Geyer	Box 915, Juneau
Arizona		Phoenix	E. M. Scott	1017 Professional Bldg., Phoenix
Arkansas		Little Rock	D. M. Hamm	White Bldg., Clarksville
California	Apr. 21-23, 1952	San Francisco	L. R. Ludwigsen	450 Sutter St., San Francisco
S. California			C. A. Moss	1401 S. Hope St., Los Angeles
Colorado	Sept. 30-Oct. 3	Colorado Springs	R. A. Downs	724 Republic Bldg., Denver 2
Connecticut	May, 1952	Bridgeport	E. S. Arnold	37 Linnard Rd., W. Hartford
Delaware	Jan. 1952		S. J. Krygier	309 S. State St., Dover
District of Columbia	Mar. 9-12, 1952	Washington	K. H. Wood	202-1835 Eye St., N. W., Washington
Florida	Apr. 20-23, 1952	Jacksonville	T. A. Price	808 Congress Bldg., Miami
Georgia	Sept. 23-26	Atlanta	J. M. Heard, Jr.	Persons Bldg., Macon
Hawaii	Sept. 27-29	Hilo	J. H. Dawe	810 N. Vineyard St., Honolulu 17
Idaho	Sept. 27-29	Lewiston	H. M. Klaaren	Breier Bldg., Lewiston
Illinois	May 19-22, 1952	Springfield	P. W. Clopper	623 Jefferson Bldg., Peoria 2
Indiana	May 12-14, 1952	Indianapolis	E. E. Ewbank	Kingman
Iowa	May 5-7, 1952	Des Moines	H. I. Wilson	639 Insurance Exchange Bldg., Des Moines
Kansas	May 4-7, 1952	Topeka	F. A. Richmond	Brotherhood Bldg., Kansas City
Kentucky	Mar. 31-Apr. 2, 1952	Louisville	A. B. Coxwell	1976 Douglas Blvd., Louisville
Louisiana	Apr. 17-19, 1952	Shreveport	J. S. Bernhard	407 Medical Arts Bldg., Shreveport
Maine	June, 1952	Rockland	S. Gower	Skowhegan
Maryland	May 4-7, 1952	Baltimore	E. L. Pessagno, Jr.	415 Medical Arts Bldg., Baltimore 1
Massachusetts	May 4-7, 1952	Boston	H. E. Tingley	12 Bay State Road, Boston
Michigan	Apr. 21-23, 1952	Detroit	F. Wertheimer	Michigan Dept. of Health Lansing
Minnesota	Feb. 18-20, 1952	St. Paul	C. V. E. Cassel	242 Lowry Medical Arts Bldg., St. Paul
Mississippi			H. M. Campbell	428 Gloster St., Tupelo
Missouri	Sept. 12, 1952	St. Louis	R. R. Rhoades	201 Merchants Bank Bldg., Jefferson City
Montana	May 1-3, 1952	Butte	C. S. Renouard	304 Phoenix Bldg., Butte
Nebraska	May 12-14, 1952	Omaha	F. A. Pierson	1112 Federal Securities Bldg., Lincoln
Nevada	June, 1952	Reno	R. La Fond	Medical Dental Bldg., Reno
New Hampshire	June 29-July 1, 1952	Bretton Woods	F. E. Williams	814 Elm St., Manchester
New Jersey	Apr. 23-25, 1952	Atlantic City	J. G. Carr	407 Cooper St., Camden
New Mexico			J. S. Eilar	Suite 7, Medical Arts Square, Albuquerque
New York	May 12-15, 1952	Syracuse	C. A. Wilkie	1 Hanson Place, Brooklyn
North Carolina	May 11-14, 1952	Pinehurst	B. N. Walker	Liberty Life Bldg., Charlotte
North Dakota		Minot	J. H. Lunday	302 Black Bldg., Fargo
Ohio	Nov. 25-28	Cleveland	E. G. Jones	185 E. State St., Columbus
Oklahoma	Apr. 20-23, 1952	Oklahoma City	R. C. Calkin	Calkin Bldg., Guthrie
Oregon	Mar. 3-5, 1952	Portland	H. C. Fixott, Jr.	408 Selling Bldg., Portland
Panama Canal Zone	Dec.	Balboa	O. Slavin	Box 415, Balboa
Pennsylvania	Sept. 11-14	Pittsburgh	M. D. Zimmerman	217 State St., Harrisburg
Puerto Rico	Jan. 1952	San Juan	R. Carrasquillo	Box 214, Rio Piedras
Rhode Island	Jan. 1952	Providence	M. L. Biderman	144 Westminster St., Providence
South Carolina		Greenville	J. R. Owings	7 Medical Court, Greenville
South Dakota	May 18-20, 1952	Mitchell	E. W. Elmen	Sioux Falls
Tennessee	May 5-7, 1952	Memphis	W. L. McCulley	Brown Bldg., Cleveland

State	Date	Place	Secretary	Address
Texas	Apr. 28-May 1, 1952	Fort Worth	W. Ogle	3607 Gaston Ave., Dallas
Utah			E. O. Thompson	915 Medical Arts Bldg., Salt Lake City
Vermont	May, 1952	Woodstock	W. J. Reardon	Rutland
Virginia	Apr. 28-30, 1952	Virginia Beach	J. E. John	804 Medical Arts Bldg., Roanoke
Washington	May 15-17, 1952	Seattle	C. R. Flood	230 Cobb Bldg., Seattle
West Virginia	July, 1952	White Sulphur Springs	A. B. Drake	508 West Virginia Bldg., Huntington 1
Wisconsin	Apr. 14-17, 1952	Milwaukee	R. A. Mason	964 N. 27th St., Milwaukee
Wyoming		Casper	T. J. Drew	State Capitol Bldg., Cheyenne

MEETINGS OF STATE BOARDS OF DENTAL EXAMINERS

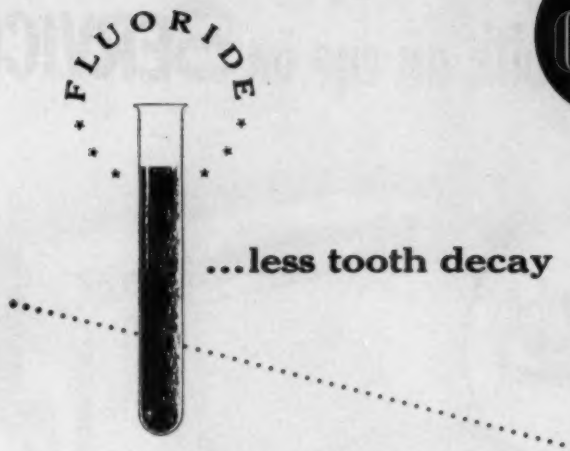
State	Date	Place	Secretary	Address
Alabama			M. D. Edwards	120 Adams, Montgomery
Alaska			J. H. Geyer	P. O. Box 915, Juneau
Arizona			R. K. Trueblood	25 N. Second Av., Glendale
Arkansas			H. O. Weatherly	205 Halter Bldg., Conway
California			K. I. Nesbitt	507 Polk St., San Francisco 2
Colorado	June 23-27, 1952	Denver	C. K. Phillips	724 Republic Bldg., Denver 2
Connecticut			C. G. Brooks	302 State St., New London
Delaware			P. K. Musselman	143 W. Main St., Newark
District of Columbia			W. M. Falls	1801 Eye St., N. W., Washington 6
Florida	July 7-12, 1952*	Jacksonville	A. W. Kellner	P. O. Box 155, Hollywood
Georgia			S. H. Yarbrough	Medical Arts Bldg., Columbus
Hawaii			H. L. Houvener	427 Dillingham Bldg., Honolulu
Idaho			W. K. Adams	718 Arthur St., Caldwell
Illinois	Nov. 6-9*	Chicago	W. A. McKee	503 Wood Bldg., Benton
Indiana	Nov. 12-15*	Indianapolis	C. A. Frech	504 Broadway, Gary
Iowa			H. M. Willits	719 Roshek Bldg., Dubuque
Kansas			G. L. Teall	Box 71, Hiawatha
Kentucky			R. I. Todd	Western Union Bldg., Richmond
Louisiana			A. R. deNux	Marksville
Maine			R. A. Derbyshire	Box 387, Skowhegan
Maryland	Nov. 5-7	Baltimore	H. Levin	3429 Park Heights Ave., Baltimore 15
Massachusetts			J. C. Wilson	State House, Boston 33
Michigan			J. L. Champagne	3714 W. McNichols Road, Detroit 21
Minnesota			F. A. Larson	1632 Washington St., N.E., Minneapolis
Mississippi	Jan. 7, 1952	Jackson	J. C. Boswell	508 Lamar Life Bldg., Jackson
Missouri			R. R. Rhoades	Central Trust Bldg., Jefferson City
Montana			P. M. Feda	Box 865, Helena
Nebraska			C. A. Bumstead	924 Stuart Bldg., Lincoln
Nevada			G. C. Steinmiller	Masonic Temple, Reno
New Hampshire			J. B. Brown	5 N. State St., Concord
New Jersey			W. A. Wilson	150 E. State St., Trenton 8
New Mexico			J. J. Clarke, Sr.	Artesia
New York			D. W. Beier	23 S. Pearl St., Albany 7
North Carolina			F. O. Alford	1109 Liberty Life Bldg., Charlotte 2
North Dakota			A. B. Crabtree	Ellendale
Ohio	Oct. 22-27	Columbus	H. B. Smith	322 E. State St., Columbus
Oklahoma			J. B. Cole, Jr.	706 Asp, Norman
Oregon	Dec. 3-6*	Portland	A. F. Davis	306 Public Service Bldg., Portland
Pennsylvania	Dec. 3-5§	Philadelphia	R. E. V. Miller	Northampton National
	Dec. 6-8*•			Bank Bldg., Easton
	Dec. 8††			
Puerto Rico		Santurce	L. C. Coll	Box 3717, Santurce
Rhode Island			F. M. Hackett	267 Academy Ave., Providence
South Carolina			E. G. Bumgardner	1517 Hampton St., Columbia
South Dakota			K. A. Stormo	Lead
Tennessee			F. S. Maxey	804 Bennie Dillon Bldg., Nashville 3
Texas	Sept. 23-29†	Dallas	R. T. Weber	312 Capital National Bank
	Sept. 26-28‡	Dallas		Bldg., Austin

State	Date	Place	Secretary	Address
Utah			J. J. Dalpiaz	Helper
Vermont			F. A. Reid	Windsor
Virginia			J. M. Hughes	715 Medical Arts Bldg., Richmond 19
Washington			J. B. Kiefer, Jr.	510 Cobb Bldg., Seattle
West Virginia	June 24-25, 1952	West Liberty	C. A. Laughlin	613 Prunty Bldg., Clarksburg
Wisconsin			S. F. Donovan	Tomah
Wyoming			W. J. Ryan	208 Boyd Bldg., Cheyenne

*Dentistry and dental hygiene.
†Dental examinations.
‡Dental hygiene examinations.
§Dental and dental hygiene written examinations.
**Dental clinical examinations.
††Dental hygiene clinical examinations.

MEETINGS OF OTHER ORGANIZATIONS

Name	Date	Place	Secy. or Chm.	Address
American Academy of Dental Medicine	Dec. 2	New York	W. M. Greenhut Secy.	124 E. 84th St., New York 28
American Academy of Periodontology	Oct. 11-13	Washington, D. C.	C. E. Chamberlain Secy.	115 North St., Peoria, Ill.
American Association of Dental Examiners	Oct. 12, 13	Washington, D. C.	C. A. Bumstead Secy.	924 Stuart Bldg., Lincoln, Neb.
American Board of Oral Pathology	Oct. 15	Washington, D. C.	J. L. Bernier Secy.	Armed Forces Institute of Pathology, Washington 25, D. C.
American Dental Assistants Association	Oct. 15-18	Washington, D. C.	M. L. Martin Exec. Secy.	410 First National Bank Bldg., LaPorte, Ind.
American Denture Society	Oct. 13, 14	Washington, D. C.	A. L. Roberts Secy.	Aurora National Bank Bldg., Aurora, Ill.
American Public Health Association	Oct. 29-Nov. 2	San Francisco	R. M. Atwater Exec. Secy.	1790 Broadway, New York 19
American Society for the Advancement of General Anesthesia in Dentistry	Oct. 22	New York	M. H. Feldman Exec. Secy.	730 Fifth Ave., New York
American Society of Dentistry for Children	Oct. 12-14	Washington, D. C.	M. Kelner Program Chm.	1930 Chestnut St., Philadelphia 3
Asociacion Odontologica Argentina	Sept. 24-26	Buenos Aires, Argentina	A. C. Guevara Secy.	959 Junin, Buenos Aires, Argentina
Canadian Dental Association	Sept. 23-26	Ottawa, Ontario	D. W. Gullett Secy.	234 St. George St., Toronto 5, Ontario, Canada
Chicago Dental Society	Feb. 4-7, 1952	Chicago	K. S. Richardson Exec. Secy.	30 N. Michigan Ave., Chicago
Great Lakes Society of Orthodontists	Nov. 5-7	Cleveland	C. R. Anderson Secy.	402 Loraine Bldg., Grand Rapids, Mich.
Greater New York Dental Meeting	Dec. 3-7	New York	S. G. Standard Gen. Chm.	Room 106A, Statler Hotel, New York 1
Journees Dentaires de Paris, International Congress	Nov. 21-25	Paris, France	R. Rolland Secy. Gen.	15, Boulevard Malesherbes, Paris VIII, France
Midcontinent Dental Congress	Nov. 25-28	St. Louis	J. E. Brophy Exec. Secy.	927 Syndicate Trust Bldg., St. Louis 1
New England Dental Society	Sept. 26, 27	Boston	A. R. Wilson Secy.	43 Farmington Ave., Hartford 5, Conn.
New Orleans Dental Conference	Nov. 11-14	New Orleans	M. R. Matta Secy.	629 Maison Blanche Bldg., New Orleans
Rocky Mountain Society of Orthodontists	Nov. 5, 6	Denver	D. V. Benkendorf Secy.	932 Metropolitan Bldg., Denver 2
Twelfth Congress of French Stomatology	Oct.	Paris, France	P. Fries Secy.	42 Rue Notre-Dame-des-Champs, Paris VI, France



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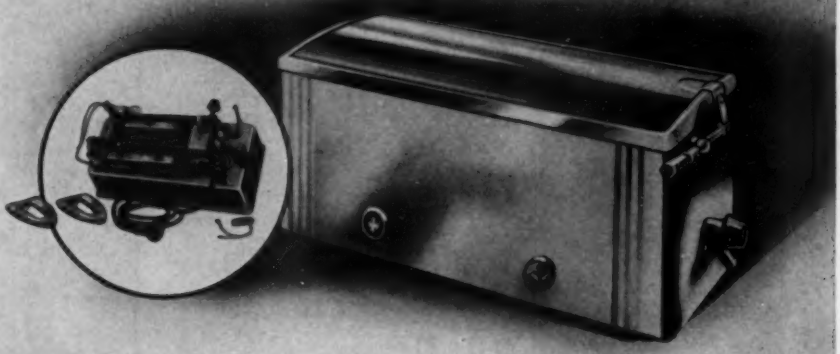

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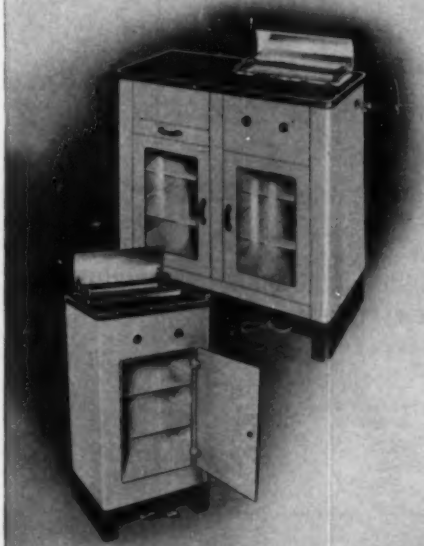

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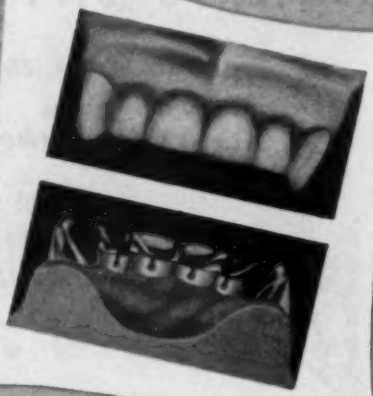

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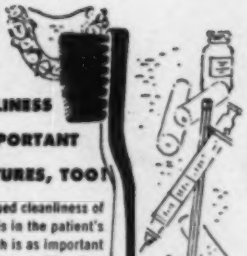

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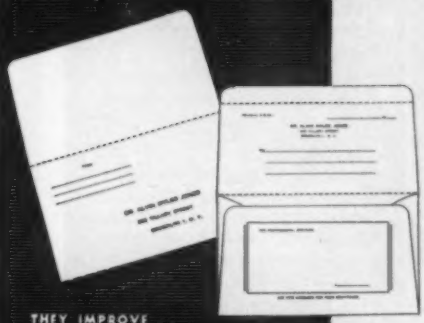

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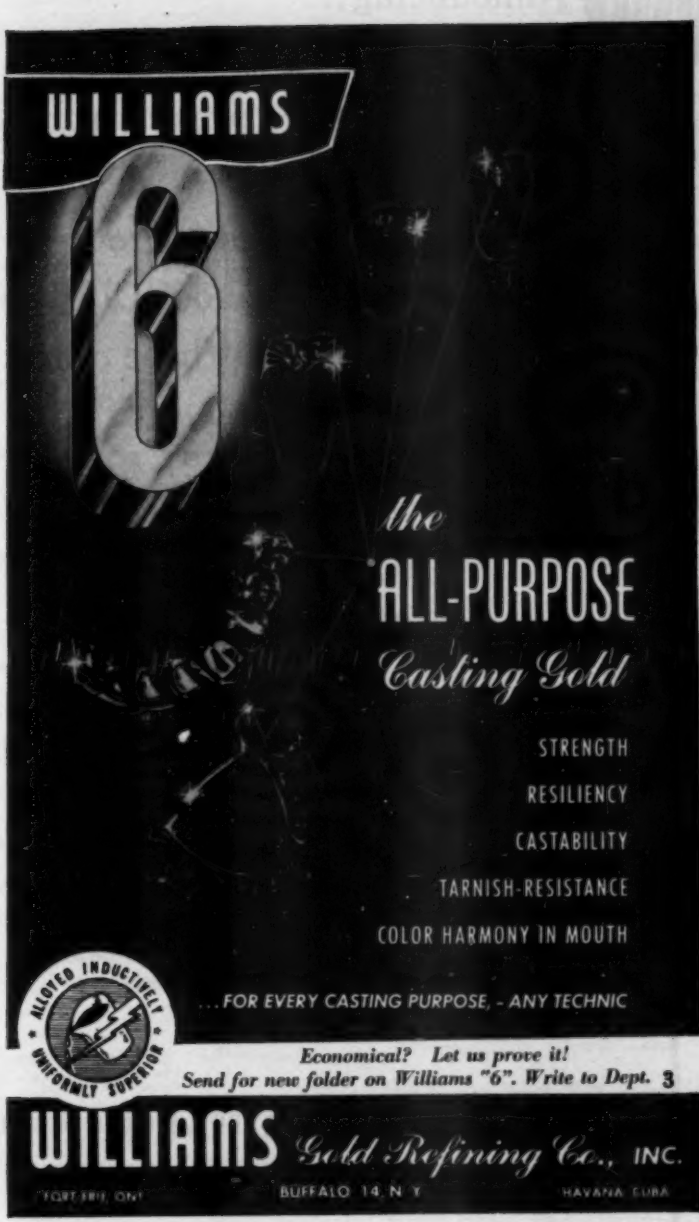
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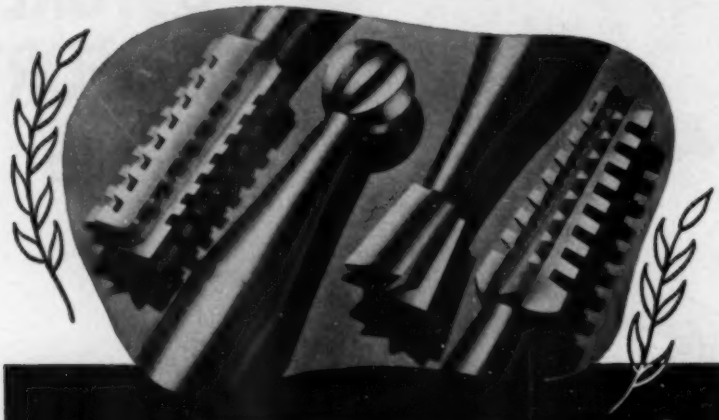

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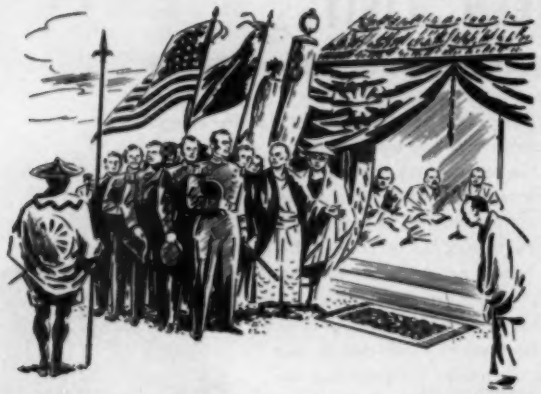

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*Meyer, F. L., Brown, M. L., and Hathaway, M. L. *Nutritive value of school lunches as determined by chemical analysis.* J. Am. Dietetic Ass'n. (In Press)

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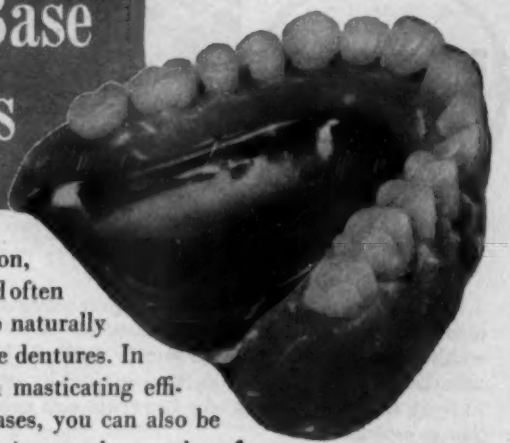

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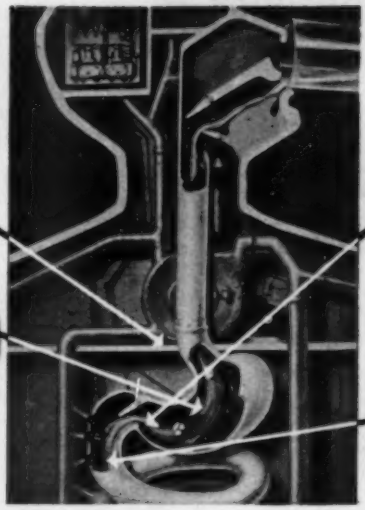

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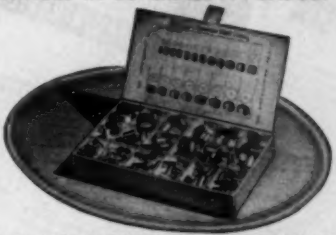

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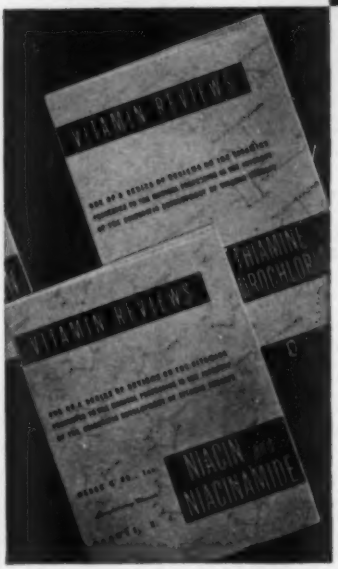

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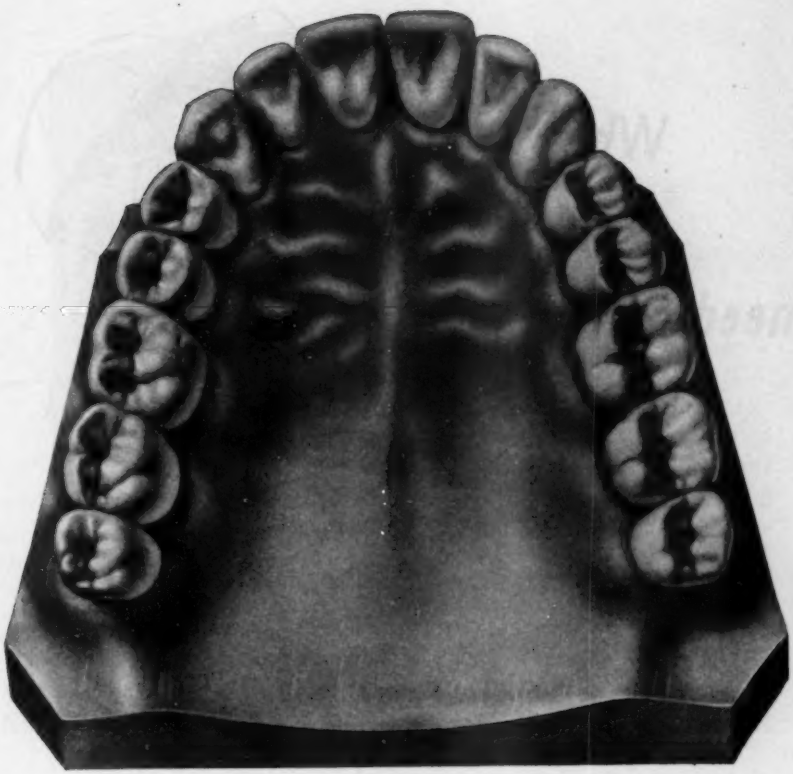

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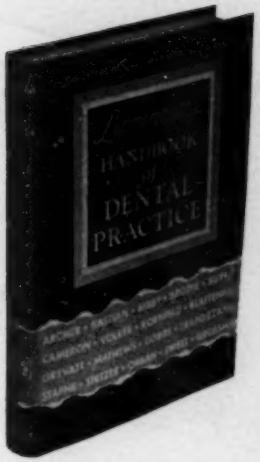

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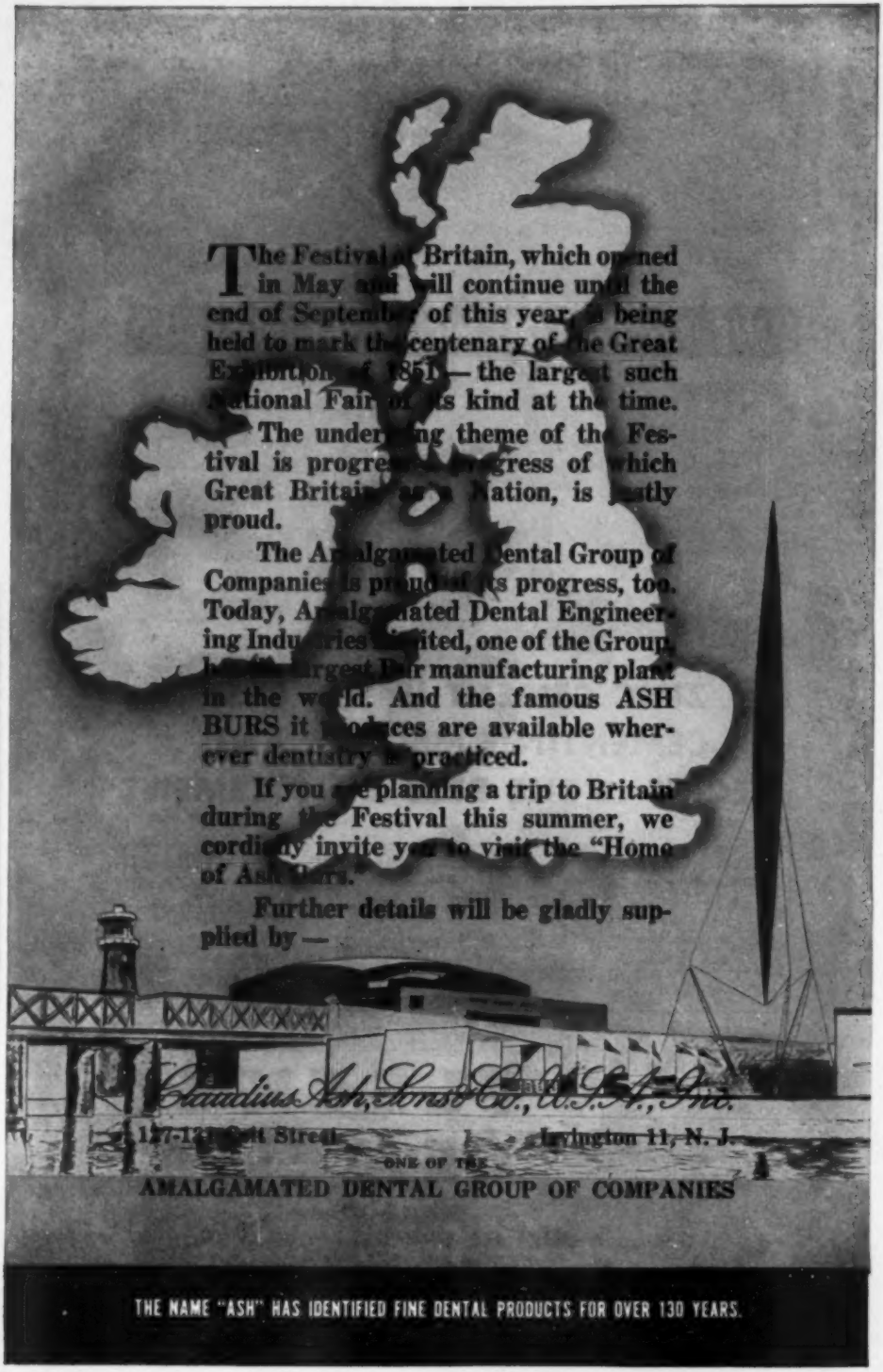
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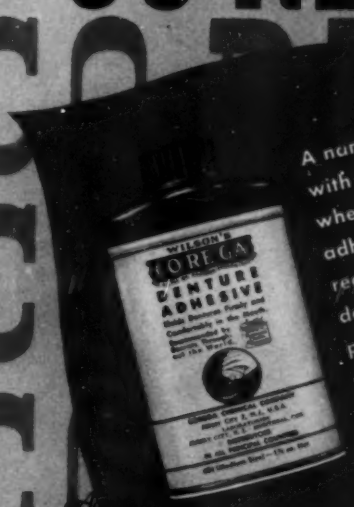

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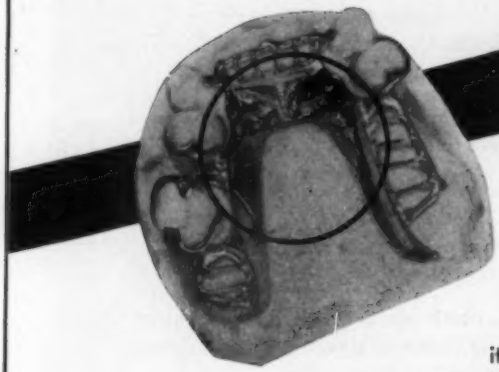

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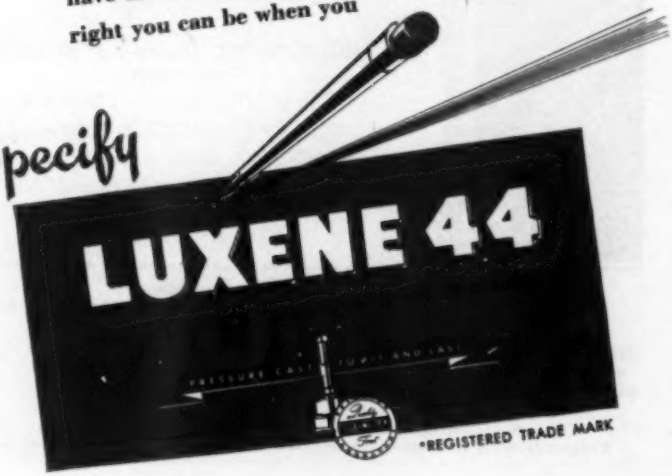

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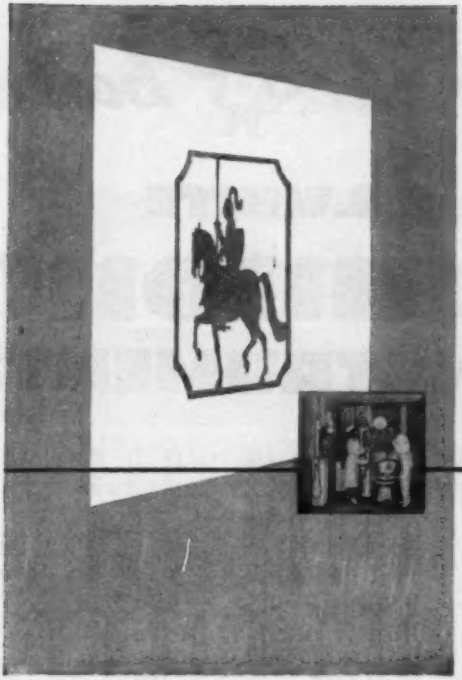

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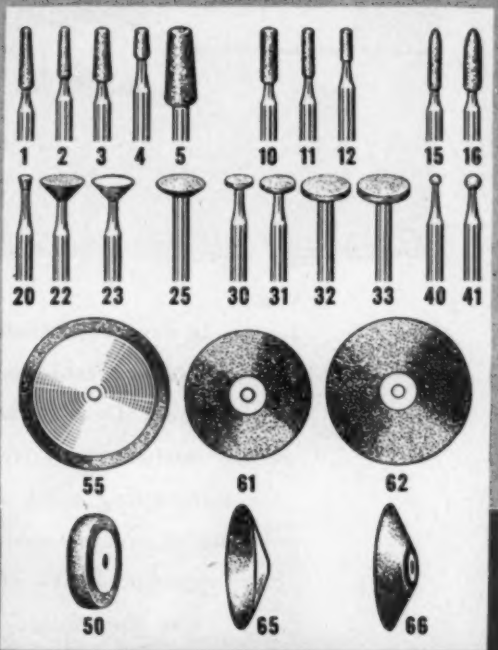

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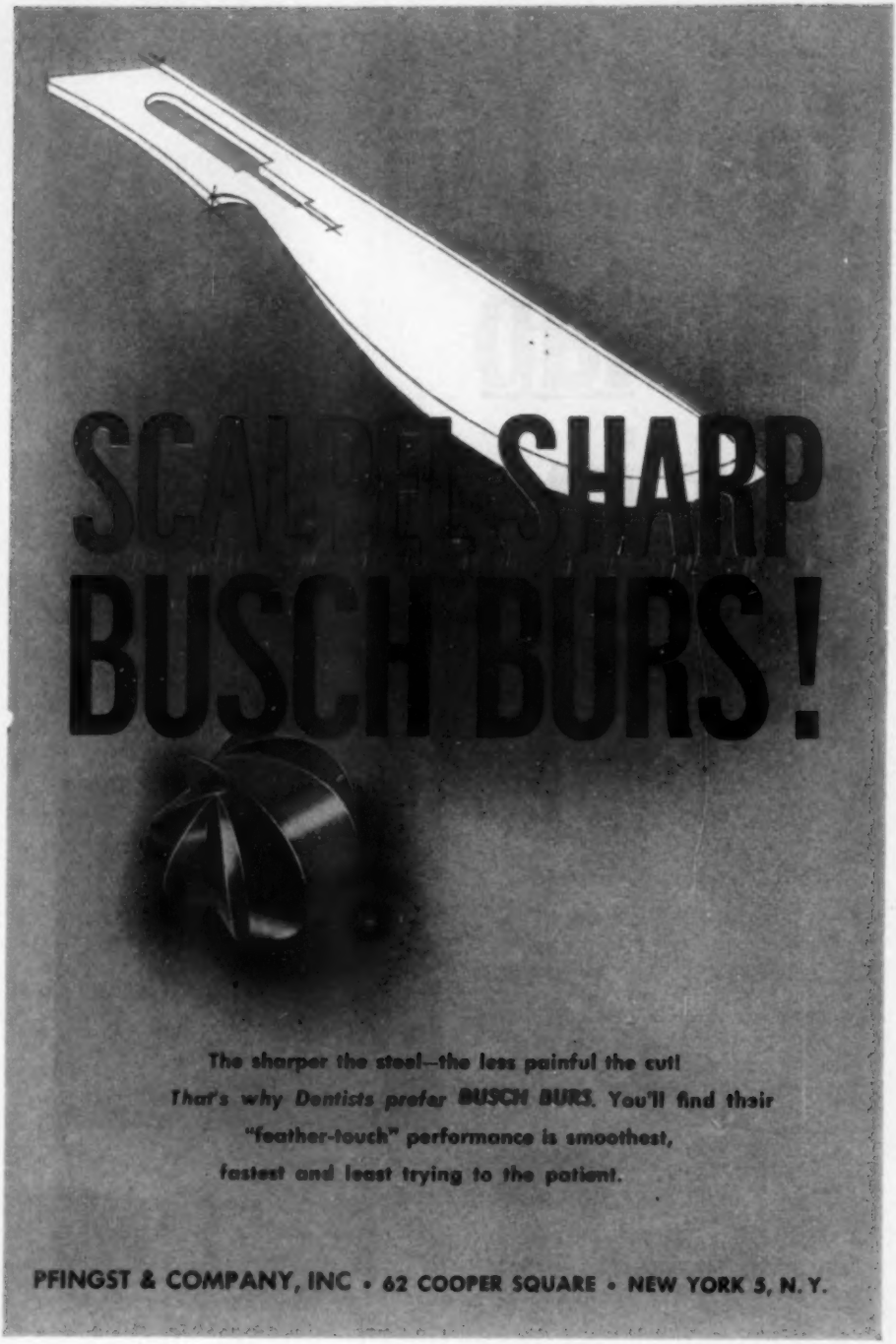
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PRACTICES AND OFFICES FOR SALE

NEW JERSEY—Well established, fully equipped practice located suburban town, Essex County; about 15 miles from New York City. Excellent clientele. Owner retiring. Applicants must have three years experience. Address A.D.A. Box 68.

•

NEW YORK—Professionally landscaped model brick ranch home and fully equipped office, located on main artery of fast-growing Long Island community. 7-room home has two baths, two patios, other extras. $25,500 complete; $23,000 without equipment. Address A.D.A. Box 69.

•

NEW YORK—Combination home and thriving practice, located in growing town of 25,000 on south shore, Long Island. Newest equipment, waiting room, laboratory, operating room and dark room; house has two tile baths, hardwood floors, fireplace. Located on landscaped corner plot on main street. $35,000 complete; owner to specialize. Address A.D.A. Box 70.

•

NEW YORK—Excellent two-chair dental office and practice in professional building. Beautifully set-up, rent very reasonable. Will sacrifice with or without equipment. Direct replies to Dr. R. F. Rudisill, 403 Fulton Street, Troy, New York.

•

OHIO—Desirable, modern, fully equipped two-chair office available now; owner moving to California. Located in prosperous farming county with population of 18,000; one other dentist. Address Box 126, Mt. Gilead, Ohio.

•

OKLAHOMA—Dental practice, with equipment and furniture, located in town of 1600 population, 30 miles from Oklahoma City. Active practice; only dentist within 18 miles. Low overhead; office in brick building with bank and post office. $2500. Direct replies to Dr. M. H. Baxt, Blanchard, Oklahoma.

•

SOUTH DAKOTA—For sale due to death. Fully equipped, modern, three-chair dental office and practice located in beautiful new office building. 3 operating rooms, reception lounge, private office. College town of 10,000. Direct replies to Mrs. A. F. Starksen, 725 Seventh St., Brookings, South Dakota.

•

VIRGINIA—Dental office or equipment at Virginia Beach. One operating room; completely Ritter equipped. Direct replies to Lt. jg. John R. Anderson, Dental Dispensary, Parris Island, S. C.

•

WASHINGTON—Completely furnished and equipped office and practice located in professional building in Seattle; 40% State Health and VA work. Three-bedroom home with some furnishings, private beach, two lots, also for sale. Easy terms. Address A.D.A. Box 71.

LOCATIONS AVAILABLE

CONNECTICUT—One or two chair bungalow dental office for rent; with or without latest Ritter equipment. Reception room shared with chiropodist. Located in wealthy Hartford residential suburb; 45,000 population. Ideal opportunity. Address A.D.A. Box 46.

•

ILLINOIS—3 rooms and private laboratory for rent; dentist location for 30 years. Present dentist retiring. Located in suburb of Chicago; population, 10,000. Direct replies to Mr. Anthony Gowgiel, 6159 Archer Road, Argo, Ill.

•

MASSACHUSETTS—Front office suite in a new building. Ideally suited for a dentist. Lovely college town. Direct replies to Gerald F. Hogan, M.D., 71 N. Pleasant Street, Amherst, Mass.

•

NEW YORK—Excellent opportunity to rent fully-equipped dental office and small, furnished living quarters. Excellent business and professional center; Broadway, Paterson, N. J. Reasonable rental. Direct replies to Mr. R. A. Rabin, 130 Gale Place, Bronx 63, N. Y.

•

NEW YORK—Eastern Long Island, substantial ten room home for sale. 2½ baths, eight room bungalow office building, Ritter equipped. Suitable terms; serious inquirers only. Address A.D.A. Box 47.

•

NEW YORK—3-room corner suite for rent, in modern building. Located 60 miles north of Albany; 45,000 population. Direct replies to Mr. Ben Cohen, 3024 B. 3rd St., Brooklyn, N. Y.

OPPORTUNITIES AVAILABLE

CALIFORNIA—Dentist desires associate in general practice. Office located in new bungalow; 3 completely equipped operating rooms. Reasonable monthly rental of office space and equipment. Details of professional background required. Direct replies to Dr. Vernon L. Gilman, 2803 Thirty-third Street, Sacramento, California.

•

MASSACHUSETTS—Associate wanted in Boston for practice limited to orthodontics. Must be graduate of recognized orthodontic course. State qualifications. Address A.D.A. Box 72.

•

MICHIGAN—Philanthropic foundation wants dentists under 40 years of age for public health work. Starting salary rate, $4500 per annum. Michigan licensure not required provided the individual is a graduate of an accredited dental school and is licensed in another state. For detailed information write Kenneth R. Gibson, D.D.S., M.S.P.H., Director of Child Health Division, Children's Fund of Michigan, 660 Frederick Street, Detroit 2, Michigan.

•

NEW YORK—Dentist, Eastern Long Island. Must be draft exempt, registered New York; insured. Percentage or investment basis. Owner retires next year. State age, experience, income needed to start. Address A.D.A. Box 58.

•

NEW YORK—Oral Surgery intern wanted in A.D.A. approved hospital; 12 months. Includes major oral surgery, exodontia, radiology, anesthesia, E.N.T., maxillo-facial surgery and pathology. Immediate opening for graduate of approved school. Direct replies to Dr. B. S. Recant, Harlem Hospital, New York city.

•

OHIO—Dental internship available immediately. Fully approved dental staff; 424 bed general hospital. Excellent educational service including 3 months general anesthesia; liberal stipend. Apply Director, Miami Valley Hospital, Dayton 9, Ohio.

•

TEXAS—Young dentist wanted to work in large, air-conditioned office for good salary or percentage. Owner has practice larger than he can handle. Direct replies to Dr. M. M. Henderson, 1014½ Prairie, Houston, Texas.

OPPORTUNITIES WANTED

WANTED—Dentist, 1950 graduate, wishes to purchase general practice in Iowa or associate with medical group. Part time crown and bridge instructor plus private practice. Address A.D.A. Box 73.

•

WANTED—Dentist, recent graduate, desires association or part time position with general practitioner or specialist; licensed in New York. Address A.D.A. Box 75.

•

WANTED—Dentist, 1945 Pittsburgh graduate, desires active practice or association with future opportunities in New Jersey or New York; licensed in both states. 6-months internship, varied clinical experience, two years private practice. Now completing 30 months army service. Address A.D.A. Box 74.

•

WANTED—Dentist desires association, partnership or position leading to purchase with orthodontist or general practitioner in New York or New Jersey. Excellent orthodontic training and experience. Address A.D.A. Box 76.

•

WANTED—Dentist desires position or association in general or specialized practice. Excellent surgical background; 22 years varied experience, pleasing personality. Substantial remuneration essential. Wisconsin and Illinois licensure. Address A.D.A. Box 77.

EQUIPMENT FOR SALE

FOR SALE—Ritter equipment, black chair, Ivory senior unit. Prometheus Sterilizer, instrument cabinet, surgical cabinet, 2 steel cabinets, instruments. Fine chance for recent grad—lots of extras. Will not sell separately. $800. Direct replies to Dr. George G. Starke, Amenia, New York.

MISCELLANEOUS

WANTED—Old Dental Books; Orthodontia Journals; Old Dental Prints; Advertisements. Leo L. Bruder, 1 DeKalb Avenue, Brooklyn 1, New York.

Burneice Larson, Director
The Medical Bureau
Palmolive Building
Chicago, Illinois

OPPORTUNITIES AVAILABLE

WANTED—(a) Pedodontist or general practitioner; association with general practitioner; college town, Massachusetts.

•

(b) Oral surgeon to associate with general practitioner; long established; Pennsylvania.

•

(c) Orthodontist; permanent association; busy practice; New York.

•

(d) Dentist for full-time institutional position; $5000-$6000; Michigan.

•

(e) Assistant by dentist well established, Chicago.

•

(f) Orthodontist to associate general practitioner; Massachusetts.

•

(g) Pedodontist, exodontist and general practitioner; dental department, large group and hospital; medical center, West.

•

(h) Dentist for group practice; Baltimore.

•

(i) Association, general practice; early partnership; Georgia.

•

(j) Oral surgeon to become associated with oral surgeon; California.

•

(k) Associate; general practice; town of 100,000, New York.

•

(l) Pedodontist; association, private practice; Michigan.

•

(m) Dentist qualified biochemistry or chemistry; research appointment; university dental school.

•

(n) Full time institutional position; Northwest.

•

(o) Dentists qualified in teaching for following departments: operative dentistry, oral pathology, periodontia, children's dentistry, prosthetics, crown and bridge.

The Medical Bureau (cont'd)

(p) Oral surgeon qualified to head department and, also, assistant or associate professor, oral surgery; university school of dentistry.

•

WANTED—(a) Dental hygienist; dental department, large group; medical center, Southwest.

•

(b) Dental hygienist; interesting position with public schools; residential town, Pennsylvania.

OPPORTUNITIES WANTED

(a) D.D.S., Pennsylvania; twelve years' general practice, considerable surgery, prosthodontia; during World War II served as dental surgeon in Orient, directing staff of 40 native dentists, teaching in dental school.

•

(b) Oral Surgeon; now completing three-year fellowship, oral surgery; during two years' military service, duties confined to oral surgery in station hospital dental clinics.

•

(c) Orthodontist; recently completed two-year postgraduate course in orthodontia for which he received M.S.D.; four years' general practice before specializing.

•

(d) Pedodontist; year's internship, children's dentistry, Guggenheim Clinic; three years, director, school health program and county health dental clinic; four years' private practice (children's dentistry).

•

(e) Public health dentist; Ph.D. (Public Health and Social Welfare); eight years' successful private practice; two years' public health experience.

•

(f) Prosthodontist; recently received M.S. degree in Prosthetic dentistry; has taken American Board examinations; four years' general practice before specializing.

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